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An Introduction to the History of Sugar as a Commodity


A DISSERTATION

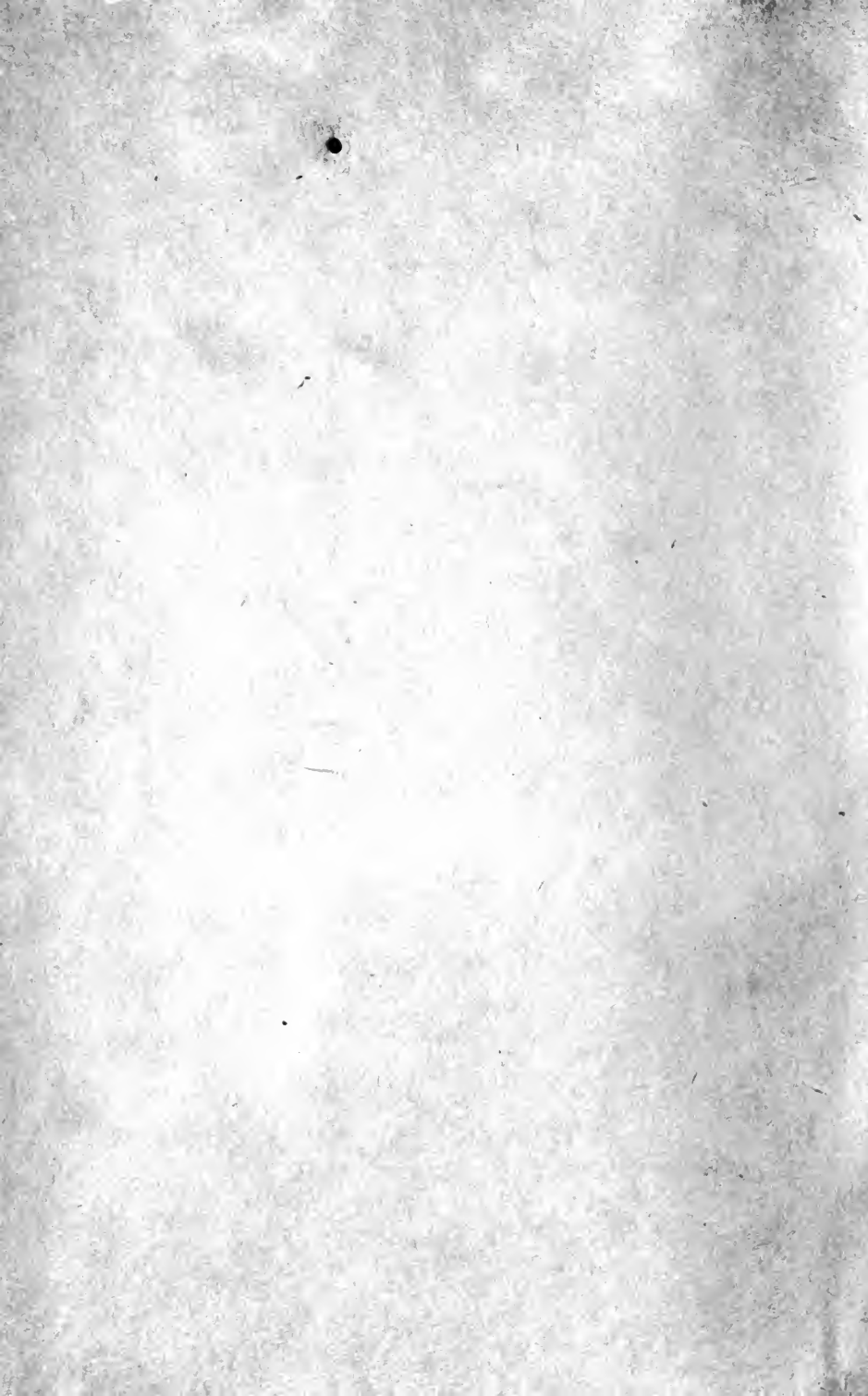
PRESENTED TO THE FACULTY OF BRYN MAWR
COLLEGE FOR THE DEGREE OF DOCTOR
OF PHILOSOPHY

BY
ELLEN DEBORAH ELLIS

1905

PHILADELPHIA :
THE JOHN C. WINSTON CO.
1905





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CHAPTER I.

GENERAL INTRODUCTION.

The title chosen for this work—"The History of Sugar as a Commodity"—suggests the two divisions into which the investigation will fall, and the subject-matter of each. First, I shall set forth the characteristics of sugar as a commodity—this will involve a study of the statics of sugar. A study of its dynamics will follow, in which I shall trace the history of sugar as a commodity.

For these investigations I have presupposed that sugar is a commodity. To gain an intelligent idea of the way in which sugar fills this rôle, it will be necessary to know what the rôle itself involves. What, then, is a commodity? Pantaleoni's definition I find the most serviceable; it not only is the clearest, most scientific and most detailed exposition that I have been able to find, but, besides, it supplies just those suggestions of genus and differentiæ so essential to a complete understanding of the subject. According to Pantaleoni's definition the four "conditions of fact" that "constitute a thing a commodity" are: first, "the existence of a concrete want, which implies the existence of an individual who feels it in a certain measure at a given moment;" secondly, "the existence of a thing;" thirdly, "the opinion that this thing has determinate structural and functional properties;" and, fourthly, "the presence or accessibility or availability of the said thing in a determinate quantity in relation to which alone and exclusively the judgment is formulated that the thing is a commodity."¹

Of these four "essentials," the second and fourth—namely, "the existence of the thing" and its "presence or availability or accessibility in a determinate quantity"—are evidently indicative

¹ Pantaleoni, "Pure Economics," 1898, pp. 59, 60.

in largest measure of qualities which all commodities have in common, such for instance as being, position, quantity and the like, and mark off, therefore, the genus "commodity." The first and third, on the other hand—namely, the "existence of a concrete want," and so "of an individual who feels it in a certain measure at a given moment," and "the opinion that the thing (desired) has determinate structural and functional properties," are just as clearly indicative of qualities concrete and particular for each commodity that may come under consideration, and suggest, therefore, the ways in which differentiae among commodities may exist.

Before any specific account of the commodity sugar can be attempted it will be necessary, therefore, to analyze these first and third "requisites." This will involve a study, first, of the wants of man, and secondly, of the various classes of economic goods. The proceeding next in order will be to examine sugar as a commodity with regard to those qualities which it either possesses or is believed to possess. In this part of the work I shall deal only with those qualities which are actually present in sugar, since in general it may be assumed that the properties which are believed to be resident in things are, to a great degree, at least, in reality there. "Doubtless," says Pantaleoni, "in civilized times the rule will be that the thing which is deemed a commodity does possess the properties attributed to it, and that these properties have the virtue of appeasing the respective want."²

Having examined the especial qualities of sugar, and knowing, in general, what forms man's wants may assume, I shall relate these two sets of facts to each other, and determine which of man's wants sugar is qualified directly or indirectly to satisfy. With this as the working material, the remaining or dynamic part of the investigation will be the tracing of the ways in which sugar has served to satisfy these wants through the years of its economic existence, which study will be, in fact, the compiling of the history of sugar as a commodity.

A study of the history of sugar as a commodity involves the

² Pantaleoni, l. c., p. 61.

tracing of all the stages in the economic progress of this good. The two chief phases in which any goods appear in the economic process are those of production and consumption, and in logical sequence production precedes consumption. Thus, sugar values had, clearly, to be produced before man could make them his own by consuming them. In the first part of the economic history of sugar, accordingly, the chief emphasis must be laid on the phenomenon of production. The development of the process of utilization will be taken into account, and its various stages reviewed. The production of sugar values by the cultivation of the cane, will be considered in relation to the refining of the juice and the trade in the finished product, sugar. The expanding culture of the sugar cane, the development of the refining industry, and the growth of the commercial exchange in sugar will in turn be investigated. When this is done, the emphasis will pass to the study of the phenomenon of consumption. The especial subject in hand lends itself with peculiar aptness to this form of procedure, since, until the circle of sugar cultivation about the earth was to all intents and purposes complete, and until through various vicissitudes all the phenomena of the production of sugar values—in cultivation and refining and trade—had centered in the hands of the English nation—until this point was reached, the more advanced phases of the increasing consumption of sugar did not manifest themselves. The transition from the one to the other, from production to consumption, is moreover made easy and natural by reason of the fact that it was in England and among the English people that sugar first passed through the later stages in its economic life from the consumption point of view.

To trace the geographical spread of the cultivation of the sugar cane is to follow its advance through many environments from southern Asia to South America.³ The cane was taken from

³ Simultaneously with this westward spread of cane-culture there was a corresponding expansion to the east, through China and Indo-China and the Asiatic Islands. This has, however, not been taken under consideration in the present work, since for this study it has not been deemed significant. The culture in these eastern regions, however, served to render

India—its original habitat—and planted in the valley of the Tigris, in the neighborhood of Jondisapur and Ahwaz. It flourished there under the Persians and under the Mohammedans. By these latter people it was transplanted to the westward, appearing successively in Egypt and northern Africa, in Syria and Palestine, in the Mediterranean Islands and in Spain.

The people of the Spanish Peninsula were at once the last to receive the cane at the hands of the Mohammedans, and the first to start it on its further migration across the Atlantic Ocean. In the early fifteenth century the islands nearer the Old World were planted with the sugar cane. From the Madeira and Canary Islands its culture spread southward to the islands about the equator—St. Thomas and the rest. In the sixteenth century the first plantations were started in the New World, and the center moved from that time constantly toward the west. In the Spanish West Indies and in Mexico and Brazil on the mainland, promising harvests were reaped. This transplanting to the New World was the last great stage in the westward migration of the cane. Various political struggles were worked out in those early days in the tropical regions of America, as the European nations contended for supremacy there, and the Spanish predominance in sugar culture was followed in turn by the English and the French.⁴

The first attempts to increase the utility of sugar by the refining industry were made in the Tigris Valley at Jondisapur and Ahwaz. This art continued to be practiced under the Sassanides, and later under the Abbassides for many years. In the Middle Ages Venice, through her discovery of the art of refining sugar, became the center for this industry and maintained her supremacy until in the early modern era Antwerp rose to prominence, which

the circle of cane-culture about the earth practically complete in the seventeenth century. (See above, p. 3.) More recently, also, sugar culture has been introduced into Hawaii and other Pacific Islands, but this belongs to a period beyond the scope of the present work.

⁴ The later transplanting of the cane to the Hawaiian and Philippine Islands was clearly subsidiary to the first great transplanting to the New World.

position she proudly held until at her destruction at the hands of Spain her sugar industry passed once more to the westward—this time to England.

The essential relationship existing between the refining of sugar and the trade in that commodity is well evidenced by the close association in which these two phases of activity have at all times been found. "Until sugar was refined it could not figure in commerce, for in its raw state it is unfit to be transported or preserved. As Venice was the center of the refining industry in the Middle Ages, so the Venetians were the chief traders in sugar at that time, and as Venice was superseded in the making of sugar by the refiners of Antwerp, so Dutch traders followed the Venetians as the carriers of sugar through Europe. While the Spanish and Portuguese held the monopoly of the cane fields in America, the vessels of these nations brought the product of their plantations to their respective mother countries. But it was Dutch ships that called at Lisbon—then the center of the colonial sugar trade—and carried the sugar to Antwerp to be refined. Dutch ships, furthermore, distributed the refined product thence among the various European markets. Finally, in the seventeenth century, the English asserted their power over these Dutch traders, who had then even taken to themselves the transporting of sugar from the English sugar isles. As the English had already become supreme in cultivating and refining sugar, so now they made good their supremacy in the sugar trade. This leadership in the world of sugar was maintained by England until the rising industry of France made this latter country a successful competitor. The final triumph of the French, however, belongs to a period beyond the scope of the present paper.

At this point, with the production of sugar values centered in the hands of the English nation, the interest passes naturally to the consumption process. So far, the consumption of sugar had not passed through many definite stages, for during much of the seventeenth century it was still essentially a luxury. From the pharmacopœia of the Persian and Arabian physicians in the Tigris Valley it passed among the Mohammedans to the lists of their highly prized articles of food. Among them it remained,

however, distinctly a superfluity—a rare and costly addition to their ordinary diet. In Spain, also, it held the place of a luxury to be offered at feasts and elaborate entertainments; and in England its early history is the same. It was, indeed, not until the latter half of the seventeenth century that the use of sugar became really general. In those years it began to be produced in sufficient quantities to make it available to the mass of the English people. It was then that the second great step in the history of its consumption was taken, when sugar left the ranks of the superfluities accessible to only the rich, and entered the lists of those articles which those in more moderate circumstances might enjoy, not only on state occasions, but as regular accompaniments of their daily food.

It is to this phase of the history of sugar that the last part of this paper will be devoted. The various stages of the popularization of sugar after 1650 will then be followed in detail, and the successive conditions of supply and demand will be reviewed. Through it all will be traced the steady fall in the price of sugar, bringing it constantly within reach of poorer classes of society, and making possible, therefore, the persistent increase in the consumption of this commodity.

Beyond this period in the history of sugar I shall not be able to pursue this present study. I shall be obliged to leave sugar at that point when it can first really be classed as a necessity of the English people—as conceived from the point of view of happiness rather than of mere survival. My plan is, however, to carry the investigation further at some future time.

In such a continuation of my work I shall examine the part that sugar played in the political and economical history of the England of the seventeenth and eighteenth centuries, and, indeed, during subsequent centuries as well. Its bearing upon the mercantile and navigation system of England and upon her colonial policy will be subjected to careful examination.

A later investigation, still, I hope to devote to the rise and progress of the beet-sugar industry. Its spread through Europe from France, where it has had a “continuous existence since the

days of Napoleon,"⁵ to Germany, Austria, Russia and Belgium, will be traced, and studied as the expansion of cane cultivation has been studied here. Its final migration to the United States will also claim consideration. Throughout this tracing of the history of the sugar beet and its product, its relationship with cane sugar will be kept constantly in mind, and an attempt will be made to ascertain where the economic advantages and disadvantages lie. The modern capitalization of the West Indian cane fields will be the subject of the final section of the work, and the effect which this process is having upon the sugar market of to-day.

⁵ C. S. Griffin, "The Sugar Industry in Europe," Quarterly Journal of Economics, Vol. XVII, p. 5.

CHAPTER II.

WANTS, COMMODITIES, MARGINAL UTILITIES.

The wants of man are obviously as many and as complex as are the activities of human life to which they give rise. For long ages philosophers and thinkers have attempted to classify these "unsatisfied cravings" of man, in order in some way to bring system out of the apparent chaos of the varied interests and relationships of humanity. As yet, however, no complete and satisfactory classification has been arrived at, so strongly have the various investigators been influenced by their own personal proclivities, and so blind have they been, in consequence, to the other desires that have still been leading men on to actions worthy or unworthy. Awaiting such a complete classification the only alternative for one who must deal with human wants in their bearing upon a particular problem—as upon the one now in hand, the consumption of the commodity sugar—is to investigate the partial classifications that have been made in the hope that they may account for the particular wants which the good under consideration has been fitted to supply.

There are apparently three great classes of these wants, and it is worthy of note that they are the categories of desire which writers on philosophy and psychology as well as on economics have selected as typical of all of the wants of men, although in reality this classification leaves some of the most powerful stimuli to human activity unaccounted for. For the present purpose, however, it is sufficient, and it will be suggestive for the specific work on sugar to mention those who have dealt most clearly and definitely with the subject.

According to Pantaleoni, man in his environment experiences wants of two fundamental kinds, which Pantaleoni has characterized as "primary" and "secondary," and which have relationship to the common and special sensations respectively. Among

the common sensations are mentioned weight, resistance and temperature, and, as bearing directly upon the present inquiry, hunger and thirst and the like. The special sensations are those received through the medium of the so-called five special senses.¹ In Senior's "Political Economy" the classification of wants is carried one degree further, and the "love of distinction" is added to the other categories of desire. He says, in part: "The mere necessities of life are few and simple. . . . But no man is satisfied with so limited a range of enjoyment. His first object is to vary his food the next desire is variety of dress and last comes the desire to build, to ornament, to furnish—tastes which are absolutely insatiable where they exist and seem to increase with every improvement in civilization. . . . But strong as is the desire for variety it is weak compared with the desire for distinction, a feeling which may be pronounced to be the most powerful of human passions. The most obvious source of distinction is the possession of superior wealth."² Professor David Irons, also, in his "Psychology of Ethics," a book written from a very different point of view, has still recognized in general these classes of wants. His discussion is valuable here, also, because he has in great measure related them to the desiring subject. In discussing the "Primitive Principles of Activity," he declares:

"Every individual strives to preserve his existence and also to express it or make it effective in some way. In other words, everyone has an impulse toward self-preservation and a tendency to self-assertion. . . . Self-assertion in any strict sense of the term is a distinctly human impulse, since it presupposes a consciousness of self as opposed to non-self. It is clear that the impulse toward self-manifestation is a tendency which can take many different directions. It appears as the ambition to accomplish something which will extort permanent social recognition. It is present also in the desire for domination over others—the desire for power in the narrow sense. In these cases it substitutes a struggle for pre-eminence in place of the struggle for mere existence. In another aspect it is the property instinct—the tendency to establish control over things and to bring them under the dominion of the self."³

¹ Pantaleoni, l. c., p. 48.

² Senior, "Political Economy," 1872, p. 11.

³ D. Irons, "Psychology of Ethics," 1903, pp. 132 sq.

Upon close examination and comparison of these passages here quoted at length, it will be seen that they refer in all to three separate classes of wants, which have been recognized in greater or less degree by all of the three writers, although they have given them different names and different degrees of prominence.

A recent investigation of this subject carried on in the Economics Seminary of Bryn Mawr College under the direction of Professor L. M. Keasbey, has attempted to codify these wants into an exact and scientific system; and the results obtained have seemed to give expression to the most satisfactory understanding yet reached of the relationship which these various departments of demand bear to each other and to the economic process as a whole. The classification as developed in the course of this research is as follows: first, the organic wants, or the desire for those goods that make for the preservation of life; secondly, the sensory wants, or the desire for those goods that contribute to the pleasure and the adornments and the fullness of life; and, thirdly, the social wants, or the desire for notoriety and distinction among one's fellow-men, and so for those goods that will insure this social recognition. It is to such goods that Professor Keasbey has attributed, because of the peculiar utility that they afford, the new form of value that he has elaborated under the name "Prestige Value," in a paper recently published on the subject.⁴

Pantaleoni has with great care and clearness emphasized the fact that the very concept of "want" implies the existence or possible existence of the good which is qualified to remove the economic pain, or the sense of maladjustment or insufficiency which is the precursor of the want. If this be true, any adequate discussion of economic wants must include also of necessity a consideration of those economic goods with which they are so vitally connected. "A want implies," says Pantaleoni, ". . . the concurrence of at least two conditions; first, some pain must exist in our consciousness, . . . secondly, there must be the

⁴L. M. Keasbey, "Prestige Value." Reprinted from the *Quarterly Journal of Economics*, Volume XVII, May, 1903.

knowledge of some means or instrument the use of which would diminish or suppress the pain in question.”⁵ With this as the conception, therefore, it will be seen that the want in its full significance acts in reality as the bridge between the economic pain and the commodity, and, stretching out as it does and covering both of these phenomena, leads the way by almost imperceptible steps from the realm of economic demand into that of economic supply.

In the great supply of economic goods, real or perspective, at the disposal of man, there are possibilities of classification which will furnish groups corresponding in general to the categories of wants as they have been formulated above. For the satisfaction of organic wants, there are those goods which are pre-eminently the necessities of life—those commodities, in other words, which are calculated to preserve the human organism against suffering or degeneration, but which will not in general serve to allow any improvement or extension of its *modus vivendi*. In economic theory, especially of the English school, these goods have played a large rôle under the name of “Subsistence Minimum.”

Those goods, secondly, which answer the demands of the sensory desires are in common parlance the superfluities and comforts of life, or, to quote Anderson, the author of the “Treatise on Commerce,” “whatever things may be said to be useful and excellent, either in nature or in art; whether for sensual or for intellectual gratifications; for the ease, convenience, or elegance of life.”⁶

The social wants, finally, find their gratification in the possession of some source of superiority over the rest of society. This superiority can, clearly, result only from the possession of some commodity or good which all cannot acquire in the same large quantities, and depends, therefore, in the last analysis upon limitation of supply. Such limitation may reside in a man’s nature itself, in the more or less exclusive possession of some quality or force which enables him above his fellow-men to profit from

⁵ Pantaleoni, I. c., p. 40.

⁶ Anderson, “Treatise on Commerce,” 1787, I, Pref., p. VII.

his environment; or it may reside in the outer world as actual physical scarcity of some commodity, some thing, such as the domesticated herd, or cultivated land in a restricted area, which, to quote Professor Keasbey again, "constituted a monopoly good from the start." Senior, also, realized the essential importance of this fact when in his discussion of value he declared that the chief source of the influence of limitation in supply on value was to be found in "two of the most powerful principles of human nature, the love of variety and the love of distinction."⁷

The laws of marginal utility are too much a part of the present economic code to need repetition here, in the consideration of the psychological effect upon man of the consumption of these goods in satisfying his various wants. It will, however, be helpful to try to understand the causes of this decline in utility which has thus been taken as the basis of all economic reasoning. These causes must rest in one of three sets of conditions. They must lie either in the character of the goods consumed, *i. e.*, in "the mechanical and chemical laws of those bodies which in economics are regarded as commodities;"⁸ or in the nature of the consumer, *i. e.*, in "the biological, psychological and sociological laws that govern man and other organic beings;"⁹ or else, as is in reality, perhaps, most often the case, in a combination of these two elements, *i. e.*, in the joint action of the specific character of the good, and the nature of the man, as these two are brought together in the process of consumption.

The essential idea which lay behind the adoption of the term "organic" as descriptive of those wants which look to the preservation of life will be of great service here in arriving at an understanding of the decline in the utility of the necessities of life during the process of their consumption. Organic wants are in reality simply the demand of the human organism that it may be supplied with those things which are absolutely requisite for its survival in a state of equilibration with its physical environ-

⁷ Senior, *l. c.*, p. 11.

⁸ Pantaleoni, *l. c.*, p. 3.

⁹ Pantaleoni, *l. c.*, p. 3.

ment. Moreover, this point of absolute equilibration may actually be attained, at which moment the organism will be in a condition of entire satisfaction, or of satiety.

The phenomena that arise in the course of the satisfaction of the sensory wants are clearly different. The possibilities of sensory enjoyments are so manifold and so multiform that even while man is engaged in the consumption of one good multitudes of other wants suggest themselves to him, and to enjoy even in small measure some gratification of them all he finds it necessary constantly to break off the consuming of one commodity and to begin that of another. A consideration of the complexity and fineness of perception in the five special senses suggests at once the almost limitless variation of which this process of sensory consumption is capable, a variation so great in fact that the term variety has been selected as that best fitted to express the distinguishing feature of such satisfaction. Adam Smith has well brought out the difference between these two forms of gratification, the organic and the sensory, when he says, "The desire of food is limited in every man by the narrow capacity of the human stomach; but the desire of the conveniences and ornaments of building, dress, equipage and household furniture seems to have no limit or certain boundary."¹⁰

In the consumption of the goods which furnish satisfaction for the social wants, the demand for recognition and prestige, yet another phenomenon appears. In this case the marginal utility does not seem to decline, nor does variety appear as a feature of the process; on the contrary, men store up great hoards of articles of like nature and quality and in great quantities without apparently any diminution in utility. "The larger the patriarch's herd, or the more extensive the landlord's estate, the greater the prestige of proprietorship and the more powerful his position in the world."¹¹ It is here that the "effective desire of accumulation" finds its most complete expression, and seems at first sight

¹⁰ Adam Smith, "Wealth of Nations," edited by Thorold Rogers, 1869, I, p. 174.

¹¹ L. M. Keasbey, l. c., p. 17.

to violate all the cherished formulæ of the economist. The reason for this apparent contradiction, however, is to be sought and found in the exact nature of the consumption process. The most significant fact in this connection is that the social satisfaction that man experiences from goods bears very little relation to the physical qualities of the good or goods accumulated, but depends rather on their mere possession or proprietorship. It will be seen, therefore, that such goods appeal not to man's distinctly limited organic and physical nature, nor to his five special senses, but rather to his whole being in its fullest and widest expansion—to borrow Professor Irons's idea—to his conception of self. The utility of such goods must, evidently, decline imperceptibly if at all; and this will be true, as already suggested, from both subjective and objective causes. Subjectively it will be true because of the infinitely expansive keyboard upon which the utilities play—that of the idea of self; and objectively, because of the many forms that social satisfaction may assume. The signs of distinction that may be accorded to a man in a complex social system are infinitely varied and variable, appearing as they do in all the countless manifestations of regard and adulation that can be developed where “there are dependents, associates or neighbors to be impressed by the extent of (a man's) possessions,”¹² and where, therefore, “to raise his social position, to add to his dignity, or augment in any way his prestige,”¹³ becomes his constant aim.

These wants and satisfactions as here analyzed are universal in society—all men strive alike for preservation, pleasure and prestige; but all men are not under all circumstances actuated simultaneously and with equal force by all of these stimuli. From the economic point of view, and apart from physical personality, society is divided into the two great classes of consumers and producers, and each one of its members appears at different times and under different circumstances as predominantly the one or the other, his especial rôle being determined by the character of

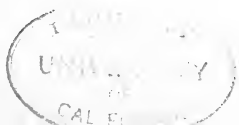
¹² L. M. Keasbey, l. c., p. 8.

¹³ L. M. Keasbey, l. c., p. 8.

the want that is uppermost for the moment, or, in other words, according to whether he is influenced in greatest measure by the desire for sensory enjoyment or pleasure, or by the impulse to accumulate some scarcity good for the purpose of procuring power or prestige.

In his rôle as consumer man has chiefly to do with the sensory gratifications—the entire consumption process as it appears in modern economic conditions is practically an obtaining ready-made of the objects of sensory desire. Under simpler conditions of life man produced in great part that which he himself consumed, and was, it is true, in such cases, almost at the same moment of time, and certainly with regard to the same commodity, both producer and consumer. But under present circumstances all that is changed, and while most men must in the long run produce as well as consume, still with reference to any single good those processes are very widely separated from each other, so widely separated, in fact, that Professor Lamprecht has adopted their growing divergence as the chief characteristic of the developing complexity of economic life, and as the gauge by which he measures the degree of civilization which a people may have reached.¹⁴ In his rôle as producer, on the other hand, man seems to be actuated by the desire to accumulate and store up “superior wealth” rather than by the wish to satisfy more immediate demands. It is true that up to a certain point the aim in production is to procure the means of acquiring the objects of organic or sensory desire; but the dominating motive that prevails in the economic world, and lies at the base of the modern competitive régime, as well as at the root of the idea of capital itself, seems rather social than purely individual, and consists, apparently, in the desire to acquire enough of the limited wealth of the world to assure to the aspirant the prestige that such possession brings.

¹⁴ Prof. Karl Lamprecht, “Zur jüngsten deutschen Vergangenheit,” II Band, Erste Hälfte, 1903.



CHAPTER III.

SUGAR CLASSIFIED.

Economic demand, as embodied in these wants here analyzed, is the same or practically the same among all mankind—whether because of original likeness in man's nature, or on account of development along similar lines through ages conditioned by like circumstances. The forms that it assumes, are, indeed, so universal that they may be regarded as general phenomena, existing actually or potentially wherever economic man is to be found. Along the line of demand, therefore, but little remains to be done after the general classification has been made, the various categories of wants becoming, so to speak, the stock in trade for the consideration of any specific economic problem. Economic supply, on the contrary, as embodied in commodities for the satisfaction of these wants, is always particular and concrete, and assumes as many different forms as there are goods in the world, each presenting, naturally, its own peculiar characteristics and qualities, and therefore its own attendant and resulting phenomena of production and consumption and the like. It is here, obviously, that much detailed work in economics remains to be done, inasmuch as an intensive study of the various economic goods, and of their histories as such, must reveal in graphic form most of the phenomena of the dynamics of economics, and so aid materially in working out many of the problems of theory.

In pursuance of this plan, the object of my work is to perform this task with regard to sugar in general, the present research, as already analyzed, being devoted to cane sugar in particular, in the earlier phases of its production and consumption. I shall, therefore, in accord with the method prescribed in a previous chapter, proceed at once to classify it as an economic good, with respect to its inherent qualities and to the wants which it is fitted to gratify, as well as to its effects upon the human organism.

Sugar is by its nature essentially a superfluity, a good which satisfies pre-eminently a sensory desire. Man's sensory desire for sweetness is one of the fundamental sensory wants, since the sweet taste is one of the four "true tastes," the other three in the list being salt, acid and bitter. It is therefore evident that the sweetness of sugar is in a very peculiar way related to the essential construction of the sensory system in man, and so to his sensory wants. And the history of sugar but serves to bear out the fact that it has been for its sweetness that this commodity has always been consumed. Sugar, then, following the classification of goods as outlined above, according to the nature of the wants to which they especially respond, is a superfluity.

Within this broad classification of sugar as a superfluity there are various sub-classifications which can be made, and which account also in large measure for the great desirableness of sugar as a food, and for its enormous consumption under favoring circumstances. Sugar as such is never consumed alone. It always plays the part of a flavor or "condiment." It is most probable that if sugar were consumed alone much less of it would in the long run be used, since its excessive sweetness would cause its utility to decline rapidly to the satiation point. In the process of cooking, however, under the influence of heat, vegetable acids, and so forth, cane sugar is inverted into products which are much less sweet. Through this loss in sweetness the decline in utility is much slower, compared with the physical quantity of the good consumed, than it otherwise would be.

Within, again, this general classification of sugar as a complementary good there are smaller sub-groupings that can be made in order to signify the especial kinds of goods to which it is complementary. Beyond the very extended use of sugar in all sorts of cooking—in confectionery, pastry, canning and the like—its use is indissolubly connected with the consumption of that very large class of foods, if such they may be called, known as stimulants. It seems, indeed, almost phenomenal that sugar should be so intimately associated with so many stimulants, there being hardly one of them for which it is not necessary, either in the actual production of the stimulant itself, or as an indispensa-

ble accompaniment of its consumption. In reviewing the specific cases in which the consumption of sugar is linked with that of stimulants, the first place must, beyond all doubt, be given to tea and coffee and chocolate. Many writers have even gone so far as to ignore all the subsidiary causes which led to the very popular use of sugar in the latter seventeenth, and the eighteenth century, and to attribute it entirely to the introduction into western Europe at that time of these three beverages.

Next to coffee and tea and chocolate must come those stimulants which are actually intoxicating. "In addition to the sugar consumed at our tables," says Phillips, "and in confectionery and pastry, it forms the basis of all our made wines, is often used as a composition in malt liquors, and the distillers draw large quantities of spirits from it."¹ "All sugars," states the article in the *Encyclopædia Britannica*, "are liable to fermentation; a special character of the three principal vegetable sugars is that when brought into contact as solutions with yeast under suitable conditions, they suffer vinous fermentation, *i. e.*, break up substantially into carbonic acid and alcohol." The fact, also, that rum is a by-product of sugar in its manufacture is illuminating in this connection; for the demand for this stimulant, and the prices it could command, must always have had an important influence upon the production of sugar. What this influence must have been is suggested in the statement made at about the middle of the eighteenth century, that rum defrayed the "ordinary expense of plantation."²

The demand for stimulants and the effect of their consumption on man are phenomena peculiar in themselves. Mr. Bruce, in his "Economic History of Virginia," has struck the keynote of this peculiarity in speaking of that great narcotic-stimulant, tobacco. "For no other Virginia product," he says, "was there opportunity for a sale that would enlarge as the amount exported increased." These words suggest the cardinal truth about all stimulants, the

¹ Phillips, "History of Cultivated Vegetables," 1822, II, p. 246.

² Dr. Wm. Douglass, "Summary—Historical and Political—of the First Planting of our American Settlements," 1751 and 1755, I, p. 117.

fact, namely, that their utility rises with the consumption of successive increments of supply. This increase in marginal utility is apparently contrary to all economic law. Its secret, however, is most probably to be found in the well-known pathological effect which these goods have upon the physical nature of man, and which remove the consumer, therefore, out of the realm of ordinary economic standards. Pantaleoni has, in fact, summarily cast aside all questions in connection with such goods, and confines his investigation to the more normal types of desire and satisfaction. He says:

"The identification of the hedonic principle with the desire of self-preservation involves our not considering as pleasures and pains *qua* the hedonic principle any sensation of either kind experienced by the deformed organs or vitiated functions of individuals who are destined to be eliminated by natural selection; and, on the contrary, our considering as pleasures those sensations that sustain, and as pains those that impair the organism. Judgments at variance with this standard concerning things that are causes of pleasant or painful sensations are classed as anti-economic, and are not subjects of our study, save in so far as they are causes of deviation in the working of economic laws."³

From the subjective point of view such desires as those which demand the stimulants for their satisfaction may, as Pantaleoni claims, be classed as uneconomic, but the goods which are thus demanded and consumed do not thereby lose their character as economic goods, which persists so long as the specific good remains scarce in comparison to the demand for it, even if this demand, as Pantaleoni suggests, is not in itself, according to all the canons, strictly economic.

Objectively and absolutely, therefore, sugar has thus been classed, first, as a superfluity, and then successively as complementary good and stimulant. Within the economic world, however, man rates his marginal utilities, and the goods in which these utilities inhere, according to judgments much more relative and subjective. In his economic rating man can and does adjudge many things which pre-eminently gratify sensory wants as necessities, if not of life, at least of happiness. Among such goods sugar

³ Pantaleoni, l. c., p. 19.

occupies a prominent place. It is, in fact, the principal object of this paper to follow the process whereby sugar has thus come to be considered by man as necessary to his daily well-being, instead of, as at first, as a superfluous luxury reserved for high days and holidays.

In the earlier stages of its consumption, when the quantity of sugar was limited, it was rated subjectively by the consumer, as it has here been rated objectively, as a superfluity. Gradually, however, with its growing cheapness and the increasing habit of its use, the economic relative judgment has diverged more and more widely from the more absolute and physical, until at present sugar is regarded by all civilized men, at least, as a *sine qua non* of happiness.

In the course of this investigation it will, it is believed, be made clear how the qualities of sugar as superfluity, complementary good, and stimulant, have constantly conditioned its economic existence. In this way much of the history of sugar will be explained, especially from the side of demand, which is so immediately dependant upon the character of the want which the good is qualified to gratify. The marvelous growth in the consumption of sugar has been wonderingly commented upon by all who have written upon this commodity, but without any very intensive study as to what the ultimate causes of this expanding consumption might have been. With the desire for sugar thus analyzed, as well as the character of the satisfaction which it affords to man, the demand for sugar is in great measure explained, and the reason why its consumption should have reached such enormous proportions is made apparent. Subsidiary influences, also, will reveal themselves as the various circumstances in the economic history of sugar are taken under consideration.

CHAPTER IV.

SUGAR VERSUS HONEY AS A COMMODITY.

With the static part of this study completed—that is, with the definition and classification of sugar as a commodity accomplished, I shall pause a moment before proceeding to the dynamic part of the work, to consider one other circumstance at once static and dynamic which not to recognize is to render any investigation of sugar inadequate. This is the relationship which sugar bears to the other great saccharine, honey. Statically, sugar is connected with honey because these two commodities have so many qualities in common, and are therefore suited to satisfy so nearly the same categories of wants. Dynamically, also, they are related, because the increasing consumption of sugar meant the decreasing use of honey, as the superiority of the new saccharine gradually asserted itself and the old fell consequently more and more into the background from an economic point of view.

Honey was the sweet in use throughout Europe for many ages before sugar was introduced from Asia. "Honey," says Moseley, "was the standard of sweetness of the ancients,"¹ and Lord Bacon adds: "There be three things in use for sweetness, sugar, honey, manna. For sugar, it was scarce known to the ancients, and little used. It is found in canes Sugar hath put down the use of honey insomuch that we have lost those observations and preparations of honey which the ancients had when it was more in price."² Lord Bacon does not attempt to account in any way for this substitution of sugar for honey in the diet of mankind. It is evident, however, that for any so decided step there must have been good and sufficient reason—and the nature of the problem

¹ Dr. Benj. Moseley, essay on Sugar in "Medical Essays," 1799, p. 64.

² Works of Francis Bacon, Lord Chancellor of England, Philadelphia, 1842, II, p. 82, and p. 116.

indicates that that reason must lie well within the province of economics.

It is a commonplace hardly worth the repeating that man's economic life is but a series of choices in which he aims always to select and take that which under the circumstances will yield him the greatest sum total of utility in whatever form such utility may appear to him as desirable. It is also obvious that in his economic life man's choices will be regulated, in so far as what he aims to secure is not a perfectly free good, by the wish to obtain the greatest amount of utility for the least expenditure. This motive is indeed so natural and so universal that it has been adopted as typical of all economic activity and has even been erected into what has been called the fundamental economic formula. It must, therefore, be adopted here as the guide for the investigation of the transition from honey to sugar in the consumption of saccharines.

Before this formula is directly applied to the problem under consideration it must, however, be analyzed into its component elements and principles in order that it may be more accurately applied to the subject in all its phases. The immediate *vis a tergo* which drives all men to economic activity of any sort is unfulfilled desire; and the fact that in general no desire can be gratified to the satiation point leaves in the multitude of partly satisfied wants a great number of stimuli ready to assert themselves and drive man to action when one shall have become from any cause more powerful than the others. Man's marginal utilities, then, ranging over his whole economic life and representing, as they do, his partly satisfied wants, become the motive power to his activities. In regulating these activities, man's purpose is evidently to obtain the maximum satisfaction of each and all of his wants, and the only means of accomplishing this end is clearly in every case to give as little as possible of something that he has, in obtaining as much as possible of something he has not—and so to attain to the greatest possible total utility throughout the whole extent of his consumption. This general ever-present desire to get from life the greatest total utility, and the ordering of each step in the process by a comparison of marginal utilities, whereby some part of that which appears as having the least utility is given in

exchange for something which appears to have the greatest, represents, simply, in detail, that which the economic formula sums up concisely as the desire to obtain the greatest possible pleasure, and in so doing to undergo the least possible amount of pain or sacrifice.

This economic formula applies with peculiar force when man finds himself, as in the present case, in the position of choosing definitely between the consumption of two commodities which satisfy fundamentally the same want. It is then that the calculation of utilities must be more exact than at any other time. In this case, as between honey and sugar, the consumer is called upon to consider whether the adoption of the new good, sugar, will result for him in an increase of his whole utility, or whether, in other words, he will procure from its use a greater satisfaction at a relatively lower cost, such cost to appear to him either in the immediate performing of muscular or mental labor, or in the more indirect expenditure of goods on the market.

For the complete understanding of the transition from the use of honey to that of sugar, the relation of utility to costs, or to disutility, must be carefully examined and calculated as these two phenomena appear in the production and consumption of the two commodities. The investigation will show, moreover, that while the actual cost of producing a given physical quantity of honey is not appreciably, if at all, less than that of producing the same physical quantity of sugar, the utility of the sugar enormously exceeds that of the honey;—in the light of which fact, the reason why man has adopted sugar as the staple saccharine becomes apparent at the outset.

From the side of the relative cost of production, the chief question as between the producing of honey and sugar, is the question as to the relative scale at which to be profitable at all the two industries must be pursued, and so, primarily, that of the initial or capital costs. Bee-keeping, as is well known, can be carried on by an individual in connection with almost any other pursuit, and on as small a scale as is desirable. The necessary outlay of capital is very small—the appurtenances for one colony being small in themselves—and yet large enough to allow the individual

to procure just as good honey, and comparatively as much, as if the activity assumed much larger proportions. The land requisite for bee-keeping is practically a free gift of nature, since the best honey is collected by the bees from surrounding pasture lands, which as such are already yielding an adequate economic return, and from which this other product, honey, may yet be extracted without any detriment to the productivity of the land for its original grazing purposes. The labor required in bee-keeping varies, naturally, with the number of the bees kept—one man being able with constant effort to tend a great many hives. From all this it becomes clear that the initial expenditure for engaging in bee-keeping is not necessarily very large. The true significance and bearing of this fact can be grasped only after the production of sugar has been considered from the same point of view. At present it should be remarked that the actual physical return from this expenditure is, relatively, not very large, and bears close relation to the actual amount of the investment. In other words, the scale of production in bee-keeping makes very little difference. Before leaving this subject attention should also be called to the fact of the great share in the production of honey which, so to speak, unappropriable natural forces play. The activities of the bees are in large measure uncontrollable, while the flowers which lend themselves to the extraction of honey must remain practically wild, since to expend labor in cultivating them, and in taking up land for that purpose, would so increase the costs of production as to eat up all the profits that could reasonably be expected from honey. In the light of this fact it becomes clear that capitalistic production—as Böhm-Bawerk uses the term in the sense of round-about methods, by the harnessing and controlling of the forces of nature—can play practically no part in the production of honey, and that therefore the actual physical return must bear a very constant ratio to the actual physical amount of expenditure or cost of production.

The case of sugar is different throughout. The necessary investment of capital has always been enormous, entailing in the earlier days, in addition to the various works indispensable to any estate, a great outlay in purchasing slaves, who alone could per-

form the very trying labor in the fields; and requiring in these later days an application of capital relatively much greater than that found necessary in the producing of any of the other agricultural staples. To be undertaken at all the production of sugar needs this great preparatory outlay. In its cultivation and grinding and boiling, so many and so expensive forms of capital are required that in order for it to be profitable at all the whole undertaking must assume large proportions. The positive costs, then, attendant upon any production of sugar are necessarily very large.

In addition to these positive costs there are also many of a negative character that are inseparably associated with the management of a sugar estate. These appear chiefly in the form of risks which accompany all cultivation of the cane, both because of the nature of the countries in which alone it can be grown to advantage, and because, also, of the character of the laborers who in all these countries must be relied on for the field work. The peculiar nature of the sugar cane itself plays also a large part in bringing the element of risk into its cultivation. These risks attendant upon sugar planting are no new thing, but have been always present wherever the cane has been cultivated. That they asserted themselves very early in the West India Islands is attested to by Sir Dalby Thomas, who wrote in 1690, and who has admirably summed up the "casualties" which in this day, as well as in his own, "are apt to befall sugar." He says:

"Plants in the ground are apt to be devoured, wounded and torn by ants, or undermined and destroyed at the roots by mugworms. Too much rain or too much drought in either season is a certain diminution of the crop, if not a total destruction of the plant, nay if the rains come too late which often happens, a whole year's planting is lost. When all these mischiefs are escaped and the canes of a considerable height, they are then liable to be twisted, broke and totally spoiled by the furious hurricanes which, once in three or four years, like a fit of an ague, shake the whole islands, not only do the crops an injury, but sometimes tumble down and level their mills, workhouses and strongest buildings. But escaping all these as the canes ripen they grow more and more combustible and are, therefore, subject to the malice and drunken rage of angry and desperate runaway negroes as well as so many other accidents, of fire, the fury whereof when

once got into a field of canes is extremely quick, terrible and scarcely to be resisted before it has destroyed the whole parcel; but when they are brought to full perfection for cutting and the planter's expectations as ripe as they, if unseasonable rains happen, or that no winds blow, then they all rot and perish in the ground, the slaves and servants all stand idle, looking upon their master's decaying fortune, and at last are only employed in clearing the ground again from that useless rubbish in which all that year's hope has perished. . . . Nay, besides all has been said, sometimes disease amongst horses and cattle will in a very short time sweep away a whole year's profit, beside constant charge of recruiting the natural decay of all living creatures."³

It has seemed worth while to quote Sir Dalby Thomas thus at length because the trials of a sugar planter of the seventeenth century, as he has here given them voice, have been echoed almost in his very words by all those who since his day have attempted to cultivate the cane, and have in their most prominent characteristics been gone through with by a company which a few years ago bought up a plantation in Cuba. On this plantation modern capitalistic methods have been applied in the greatest possible perfection—no means have been spared to utilize the favorable and to overcome the adverse forces of nature, and yet the series of contingencies that have befallen this one sugar plantation are such as would long ago have crippled an undertaking backed with less capital, or in which the hope of large profit was less secure. On this sugar plantation in question, which embraces twenty thousand acres of land, of which four thousand acres were last year planted in cane, there were in the course of the season several large and serious fires which burned over one thousand acres, all of which had been covered with cane. These cane fires, which were doubtless earlier a most serious problem to be reckoned with, have in later years been rendered less destructive, from a financial point of view. Improved methods of cutting and transporting the cane are largely responsible for this. If the cane can be ground and the juice expressed soon enough after the burning to prevent fermentation, the mere fact of the fire does not injure the quality

³ Sir Dalby Thomas, "Historical Account of the Rise and Growth of the West India Colonies," 1690, printed in the Harleian Miscellany, 1808-1813, II, p. 369.

of the sugar. Moreover, the fields are now planted in blocks, with strips of unplanted land between them to lessen the probability of extensive fires. With these arrangements, it is claimed that the item of loss through fires does not enter to any great degree into the budget of the year's expenses, although the possibility always remains that a very destructive fire may occur and bring with it untold loss, and so serious have these cane fires been in times past that it has been rated a criminal offense in Cuba to refuse aid in extinguishing one, no matter whether the person called on for assistance is employed on the burning estate or not.⁴

Most of the evils mentioned by Thomas as resulting from untimely rain and from hurricane have been experienced also during the past year upon the estate in question. In six months there have been two most destructive floods, which destroyed the railroads and much of the apparatus on the estate—the damage resulting from the first flood and hurricane alone amounting in the aggregate to about twenty thousand dollars. In addition to this the rainy season in the spring of 1904 set in so early that when only two-thirds of the cane had been cut, all the work in the fields and in the mill had to be shut down, and it was only due to a subsequent period of dry weather which came unexpectedly at the end of May that the remaining one-third of the cane was spared to the growers. The premature arrival of a rainy season works great injury to a plantation in many ways. Not only does the mud in the fields make the hauling of the heavy

⁴ This present law in Cuba, with regard to fires in the cane, comes as a curious echo, so to speak, of an act which was passed in Barbados on April 14, 1655, to prevent the firing of canes, and which reads in part as follows: "It is hereby enacted, published and declared, That whatsoever person or persons shall at any time hereafter wittingly or willingly burn or set on fire any sugar-cane-field or other place where sugar canes do grow in any place of this Island shall for every such offence to be proved receive forty lashes upon his naked back and branded on the forehead with a hot iron with the letter R and become servant to the party or parties that shall be so damnified by the burning or setting on fire the said sugar canes for the term of seven years." Acts passed in the Island of Barbadoes, 1643-1762 incl., compiled by Richard Hall, Esq., 1764, p. 21.

loads of cut cane very difficult—the bulls and oxen employed in pulling the carts being often obliged to wade through mud up to the girth—but the quality of the juice is also seriously affected, it being almost impossible to separate the sugar out when the cane is cut in the rainy season.

Such are the costs, positive and negative, that are inevitably to be reckoned with in the production of sugar, and yet so great is the return from an estate thus equipped that the cost of producing one pound of sugar is not any greater, and in many cases is much less, than the cost of producing one pound of honey, with the comparatively slender expenses that are to be undergone in bee-keeping. The reason is to be found in the fact that the possibilities for capitalization in the sugar industry are almost without limit—natural forces of every sort may be harnessed and utilized and so combined as to reach the highest possible point of productivity. The necessary elements of productive agency, also, for the raising and making of sugar, are such that they cannot be brought together on a small scale, but that once brought together they yield still a physical product in the long run relatively much greater than is the amount of honey which results from the outlay of capital necessary for bee-keeping. It is thus that on the side of cost of production sugar must be given if anything the advantage over honey, namely, that the expense incurred in producing a given physical quantity of sugar is less than that undergone in the production of the same amount of honey.⁵

⁵ It should perhaps here be noted that whereas honey is essentially suited to the early days of society when trade is not developed, sugar is just as essentially the saccharine of a commercial era. This has been clearly the case in Europe. In India, it is true, where the sugar is not refined, but the people drink the juice raw, the cultivation of the cane is carried on in the gardens of the various families. Just as soon, however, as any attempt at grinding or refining is made, the necessary outlay of capital requires that sugar be produced in quantities large enough for exchange—otherwise the capital would in nowise pay for itself. It is, therefore, quite natural that before trade was developed in Europe the consumption of honey was prevalent, sugar superseding it only when trade relations were sufficiently developed to allow the production of sugar in quantities large enough to render it economic.

There is, however, in addition to the costs incurred in producing commodities, another element to be considered in calculating the total utility that results from the economic process of producing and consuming goods. This element is the utility of the physical amount of the good produced; and in the case of honey versus sugar the advantage rests here, also, as on the side of costs, with the latter of these commodities, so that to substitute sugar for honey in one's scale of utilities would be doubly to increase one's total utility, first by decreasing the amount of cost to be undergone in obtaining the same amount of saccharine substance; and, secondly, by a direct increase in utility, since the sugar thus obtained would possess a greater amount of utility than the same quantity of honey. This superiority of sugar may upon examination be resolved into the fundamental economic categories of time, place and form utilities. These in this commodity are added to the stuff utility—sweetness, which, while it is common to both of these saccharines, is yet present in sugar in a much greater degree.

On account of its chemical composition cane sugar is sweeter than honey, for the sugars which honey contains are essentially less sweet than cane sugar. This fact has also in the common everyday consumption of the everyday man become most apparent. "The sweetness of sugar," says Oldmixon, "as far exceeds that of honey, as a pippin does a crab. 'Tis not surfeiting, but the cleanest and best sweet in the universe." ⁶

The added place, time and form utilities of sugar have been concisely stated by Karl Ritter in his article upon the early history of the sugar cane. Ritter is in reality emphasizing the superiority of refined cane sugar over the crude raw juice of the cane, which, before the discovery of the refining process, was the only form in which the product of the cane was known to man. In general, however, these advantages will readily be seen to apply to sugar as it is known to-day as over against honey, and it is to emphasize this difference that I shall cite them here. Ritter speaks of the refining process as changing the raw juice of the sugar

⁶ Oldmixon, "The British Empire in America," 1741, II, p. 146.

to the "purest and most nourishing aroma, fitted for preservation during long periods, and for being transported," and he declares that it lent to the sugar cane itself a much greater significance than it had hitherto enjoyed, in raising it to a "*Culturpflanze*" and a "*Colonialgewächs*," in attracting its product, sugar, into the trade and commerce of both hemispheres, and in making its profits very influential in the determining of the colonial systems, the managing of states and politics, and in the general policy toward the slave trade.⁷ In general, honey can be seen to suffer from these disadvantages of the unrefined sugar cane juice as Ritter enumerates them here, and thus to lack specific time, form and place utilities which sugar on the other hand possesses.

Cane sugar is, in the first place, to consider its form utility, a purer sweet than honey. It is in itself one of the original forms of sugar as it exists in nature, whereas honey, in addition to its saccharine qualities, contains other substances which tend naturally always to increase its bulk compared with the actual utility it affords. Sugar also, by reason of its greater purity, is much more soluble than honey, and can, therefore, be used in a greater number of foods, the element of variety thus introduced into its consumption serving to keep up its marginal utility, and to allow a greater amount to be consumed, and a greater utility to be enjoyed than would otherwise be the case. The added place utility of sugar over honey appears in the fact that in its dry crystallized form sugar can be transported easily all over the world, and that it therefore acquires a value in exchange that honey can never possess in nearly so great a degree; while the time utility can be seen in the prospective value which sugar acquires after present wants are satisfied, because it can be so easily and compactly stored up without danger of its spoiling. The transition from the consumption of honey to that of sugar having been thus elucidated and explained from an economic point of view, the way lies unobstructed to the consideration of the actual stages in the

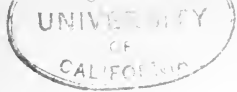
⁷ Karl Ritter, "Über die geographische Verbreitung des Zuckerrohrs (*Saccharum officinarum*) in der Alten Welt vor dessen Verpflanzung in die Neue Welt." Published in the "Abhandlungen der Königl. Akademie der Wissenschaften zu Berlin, aus dem Jahre 1839," in 1841.

transition and the manner of its accomplishment. This will resolve itself, from the particular point of view from which it will here be regarded, into the history of sugar as a commodity.

CHAPTER V.

SUGAR IN ASIA.

To trace the story of sugar in the successive stages of its career, and to consider it at each stage in the midst of the various circumstances conditioning its existence, is to elaborate a history of peculiar interest and charm. For it is doubtful whether any other economic good has so consistently been associated with the great forces and peoples that have been most representative of the different periods of the world's history. The earliest accounts of the sugar cane are in the records of the Hindu civilization of India, where as a regular article of food it had probably been used for many centuries before its existence was discovered by explorers from the western world. Even after its discovery it remained undisturbed in its original home until, in the earliest Middle Ages, the Arabs began to spread over the surrounding countries and to carry with them their culture as well as their arms. It was about the sugar cane as a medicine that much of the chemical and otherwise scientific research of these people centered, and when they began their conquests and their dissemination of the civilization of the East, they carried the sugar cane with them as a characteristic and important part of that Oriental culture of which they were the conservers as well as the disseminators. In the reconstruction of Europe, which followed the Dark Ages, sugar had an established place among the utilities of the people; and, finally, when Europe started out on her period of over-sea expansion, sugar was again selected as one of the chief products upon which the wealth of the colonial provinces and so of the mother countries should be based. Through the succeeding centuries in which the history of Europe was shaping itself along the lines of mercantilism and absolutism, and protective duties were high, sugar was one of the most prominent items in the customs rolls, and much of the colonial policy of the



various European States centered itself about this commodity. The first impetus to the beet-root industry in Europe for the purpose of extracting sugar is closely identified with Napoleon and the Continental Blockade, while for an understanding of the present rôle which this sort of sugar is playing in the economic world one has but to cast one's eye at the enormous extent of the culture of the sugar-beet and the manufacture of its product in all parts of Europe to-day. The modern tendency, also, to utilize the tropics by the application of the intellect and energy, and above all, of the capital of the temperate zone, has greatly revived the culture of the sugar cane, and has brought this commodity once more into the arena of international controversy. To follow in greater detail these various stages in the history of the sugar cane, and of its product, refined sugar, is the purpose of the remaining part of this work. This will resolve itself naturally into two greater divisions. As outlined at the beginning of this paper, in the first of these the production of sugar values will receive most emphasis, since in the earlier days of the history of sugar, before its consumption had gone beyond the point at which men regarded it as a luxury, it was in reality the production of these values that was most prominent in connection with the sugar cane. The production of values in sugar by the respective processes of cultivation, refining and exchange must accordingly here receive attention. In the second division, as intimated, the chief stress will be laid upon the consumption of sugar values; since with the area of the cultivation of the cane practically complete—as far as the limits of the present work can carry it—and with the establishment of the refining industry and the development of the trade in sugar accounted for, the interest will naturally center in the history of the consumption of this good.

To begin, then, with the geography of the culture of the sugar cane. The earliest home of the cane is now generally believed to have been Bengal, in India. Various facts combine to make it most probable that this belief is founded on truth. First, the country of Bengal was the first place in which sugar was ever found, so that the very earliest records extant point to that place

as the home of the cane. Then, too, the sugar cane has never been found growing wild.¹ This, together with the fact that in its cultivated state it was found earliest in Bengal, makes it seem probable that Bengal was its original habitat. The extreme age, also, of the Indian civilization, and the identity of the cane with it, as far back as one can go, force one to the conclusion that sugar belonged by right of birth to this world-old culture, behind which its record, if such indeed there is, cannot possibly be traced.

The most scientific study of the problems in connection with the earlier phases of the history of the sugar cane was pursued

¹ The question as to whether the sugar cane can be successfully cultivated from the seed is as yet undecided. That, so far as records go, this method of planting has never been pursued to any extent, seems established beyond a doubt. Ritter dismisses the seed of the cane (l. c., p. 340) as playing no appreciable part in its cultivation, and botanists for many years have accepted it as a fact that the seed could not be so utilized. Recently, however, experiments have been made in the raising of cane by the seed, and some specialists are hopeful that the results will be successful. Mr. Charles S. Griffin, of the Tokyo Imperial University, in a paper entitled "The Sugar Industry in Europe" (Quarterly Journal of Economics, Volume XVII, p. 13), makes the following statements: "Only within the last dozen years or so has it been rediscovered that the cane can produce fertile seeds, and serious attempts made to improve it by the selection of seeds for planting. It is as yet too early to judge whether these experiments may in time lead to the development of the sugar cane similar to that which has taken place in the case of the beet." In a footnote he adds a quotation from Mr. Harrison in a paper entitled "The Results of Recent Scientific Researches Into the Agricultural Improvements of the Sugar Cane," in *Sugar Cane*, September, 1897. The quotation is as follows: "Until the last ten years the idea that the sugar cane could produce fertile seeds was by the great majority of planters and botanists regarded as absolutely without proof, and attempts to raise canes from seeds were regarded to be as futile as I hold attempts to obtain graft hybrids are. How this scientific and popular error arose it is difficult to tell. Some years ago, with the assistance of Mr. Carruthers, the keeper of botany at the British Museum, I searched through a lot of old botanical works; and we could find no trace of this belief until about 1750, when Hughes wrote his 'Natural History of Barbadoes.' Nay, more, we found descriptions of the seed of the sugar cane so complete and accurate that Carruthers considered they must take precedence of all recent work."

by the geographer, Karl Ritter, who published the result of his investigations in the paper already referred to.² Ritter has in this work drawn deeply on his classical and scientific learning, and by far-reaching etymological and philological tests, as well as by a rigorous application of botanical and physical laws, of the influences and conditions of climate, and soil and the like, he seems to have won the case for the view which makes Bengal the original home of the sugar cane. The great majority of those who have written since his time refer to him as to the authority on this subject. The botanist Alphonse de Candolle has paid fitting tribute to Ritter's work in his book on "*L'Origine des Plantes Cultivées*." I shall quote his testimony at this point, since I have used Ritter as the chief source for this present chapter on the earliest history of the cane. De Candolle says:

"Les origines de la canne à sucre, de sa culture, et de la fabrication du sucre, ont été l'objet d'un travail très remarquable du géographe Karl Ritter . . . pour l'habitation primitive de l'espèce que nous intéressent particulièrement c'est le meilleur guide et les faits observés depuis quarante ans appuient en générale ou confirment ses opinions."³

The first knowledge of any sweet substance growing in canes seems to have been revealed to the western world by the soldiers of Alexander the Great. Before his time the Europeans had known in general only the honey, and their ideas as to the exact nature and sources even of this form of sweetness were at best but uncertain and vague. The companions of Alexander, in the course of their wanderings in Asia, came upon people who used a substance extracted from reeds as their saccharine, and brought home with them wonderful tales of their discovery. However, their reports but served to render the confusion in the minds of the Greeks and Romans still more profound, for the Macedonians, in addition to the true sugar cane, which beyond a doubt they *did* find in Asia, brought news of another substance, also found in reeds, which they themselves confused with cane sugar, and

² See ante, p. 30.

³ Alphonse de Candolle, "*L'Origine des Plantes Cultivées*," 1886, pp. 122, 123.

of which also they seem to have brought samples with them. This was the *tabaschir* or *sacar-mambu*—a medicine which “in outward form,” says Ritter, “greatly resembles sugar, but which in intrinsic qualities is very different.”⁴ The Europeans, however, failed to realize that the sweet substance which the Indians were said to find in reeds and to use as their saccharine, and this white concretion, which was also described to them as being found in reeds, and with which they themselves became familiar as it was brought to them by travelers and in trade, were not one and the same thing; and, accordingly, in all their writings on the subject they fail to make any distinction between them, and refer constantly to this latter substance as to the true sugar, which they also declare to have been used only as a medicine.

This fact has made the study of the real sugar cane in its earliest phases most difficult, for most of the earlier compilers of its history accepted without a doubt all these classical references as allusions to sugar and drew their conclusions accordingly. About the end of the eighteenth century, however, some more exact work began to be done on the subject, and the result has been a gradual clearing up of the question. In 1796 one W. Falconer, M.D., published a “Sketch of the History of Sugar in Early Times and through the Middle Ages,” in which he brings forth the hypothesis that those Greek and Roman writers who had long been supposed to have known the true sugar cane, either directly or by report, had in reality been unconsciously writing of an entirely different substance, which Falconer identified with the *tabaschir*, an Indian medicine later widely known. Alexander von Humboldt, in his “de Distributione Geographica Plantarum,” strengthened this assertion of Falconer by declaring that the so-called “sugar of the ancients” was, in very great measure at least, not the sugar of the sugar cane, but the *sacar-mambu* or *tabaschir* of the Indians and Arabians. Karl Ritter, in taking his final position on this subject, allied himself with these two eminent scholars and with Kurt Sprengle and Salmasius, who after careful research arrived at the same conclusion, and declared without hesitation that among

⁴ Ritter, l. c., p. 309.

the "ancients" the sweet substance most generally mentioned—and almost invariably as a medicine—was the above-mentioned *sacar mambu* or *tabaschir*.⁵ Since, also, it is extremely probable that it was this substance, and *not* the sugar proper that Pliny and Dioscorides and other classical authors allude to when they claim to have seen that of which they write, it seems conclusively to be proved that in those early times sugar itself had not penetrated to the country west of the Indus, but remained still confined to the peninsula of India.

Although sugar was so generally cultivated and used in this, its original home, the form in which it was consumed was very different from the crystallized sugar of to-day. It was used, rather, as a liquid, "*roh oder als Honig, Rauschtrank Molasse oder Syrup*,"⁶ the Indians at that time having very little idea of the possibility of treating the juice in any other way. Evidently, however, sugar in this form could never be used beyond the area of its cultivation, since these raw or half-cooked concoctions were suited neither to transportation without great difficulty, nor to preservation without great danger of fermenting. At this stage, therefore, the extension of its cultivation was the essential condition of the extension of its use.

It is in the fifth century A. D. that the first evidence appears that the cultivation of the cane had emerged from its primitive habitat. The new environment in which it is found at this time is in the Tigris Valley in the neighborhood of Jondisapur, a city of great importance under Persian rule, and in the period from the fifth until the eleventh century a great center of culture

⁵ Dr. Benjamin Moseley, in his essay on Sugar, written in 1799, takes sides unconditionally with those who believed that all classical allusions to *Saccharum* or *Saccharon* refer absolutely to the sugar of the cane. This is, of course, the more natural since his purpose in writing the essay was to put forth in strongest terms the medicinal qualities of sugar. His proofs, however—when he adduces such—are in no way convincing or adequate, and he must be classed among those of the older school who, without sufficient research, relied unquestioningly on the outward forms of words for their decision as to the knowledge of the "ancients" of the sugar cane.

⁶ Ritter, l. c., p. 310.

and civilization. It is the great blossoming of science and art in Jondisapur at this time that Ritter makes responsible for the presence of the sugar cane there. He believes that the Arabian physicians resident in Jondisapur introduced the sugar cane for the purpose of studying its medicinal qualities, as a result of which investigation they gave it later a most prominent place in their pharmacopœia.⁷ Ritter puts forth also the hypothesis that sugar was not transplanted immediately from India to Jondisapur, but that it found its way there by way of Siraf, a city situated at the head of the Persian Gulf. In the ninth and tenth centuries Siraf was a great commercial center, and the records of those later times seem vaguely to refer to the cultivation of sugar within its boundaries at a much earlier date. These uncertain allusions have been taken by Ritter as the basis for what he regards as the very probable but in nowise certain theory that

⁷ "Mag die aus Dioskorides und Galenus nach Obigem nun so allgemein bekannte Anpreisung des kostbaren mit Silber aufgewogenen Medicamentes . . . oder des Zuckersaftes selbst bei den griechischen Ärzten der hippokratischen Schule in Jondisapur die erste Veranlassung zur Anpflanzung von Rohrarten und insbesondere des Zuckerrohrs in den dortigen vielleicht zum Behuf der Pharmakopöe angelegten botanischen Gärten gegeben haben—wir wissen es nicht—finden aber, seltsam genug, bei der berühmtesten medicinischen Akademie im Orient, welche wie wir sahen durch Übertragung griechischer Kenntniss bei Persern, und Arabern unter dem Einfluss nestorianischer Christen mächtig emporblühte schon im Anfange des V. Jahrhunderts, die erste Nennung der köstlichsten Zuckerrohrpflanzungen. Dass Jondisapur ebenso wie das gleichzeitige benachbarte Ahwaz unter Sassaniden und später unter abassidischen Khalifen in allen Zweigen damaliger Disciplin, in Philosophie, Arithmetik, Dialectik, Musik, Geometrie, Astronomie, Astrologie, vorzüglich aber in den medicinischen den grössten Rühm im Orient genossen, dass viele der Leibärzte der Abassiden in Bagdad, (der erste bekannt gewordene ist Georg Eben Balhtishua, ein Christ, Director des Krankenhauses in Jondisapur unter Khalif al Mansur im Jahre 754) eben von diesen beiden Städten aus in die neue Residenz berufen worden, dass von ihnen die Bearbeitung der Medicamente und Pharmakopöen durch die Fortschritte der Alchemie und Chemie ausging; davon liegen die Beweise schon vor in dem was wir an einem anderen Orte (Allgem. Erdk., B., IX, S. 171-175) über die Geschichte beider Städte Jondisapur und Ahwaz, über ihren Reichtum, ihre Gelehrten . . . und über ihren Ruhm angeführt haben." —Ritter, l. c., pp. 374, 375.

Siraf was the stepping-stone over which sugar reached Jondisapur and Ahwaz.

It is to these two cities that Ritter ascribed also the credit of the invention of the refining of sugar, in so far as that art was practiced in Asia. He believes that the advance of the medical science among the Arabian physicians gathered at Jondisapur must constantly have been attended by the demand for always purer and more convenient forms of medicines and drugs, and that this demand, together with that progress in chemistry which is always found hand in hand with that in medicine, led naturally to the refining of the juice of the sugar cane. He places the date of this invention somewhere in the early years of the tenth century, since very soon after that time sugar in the modern sense finds a definite place in the books of various Arabian physicians, such as Ali Rhazi, Ali Abbas, Avicenna and others. All of these investigations and methods of proof of the various hypotheses have, it is evident, been pursued exclusively on internal evidence. It is interesting, therefore, at this point to note that that which originally inspired Ritter's work, namely, the discovery at Ahwaz of great millstones and other apparatus which he at the outset of his research believed to have been used there in the refining of sugar, here comes in as the one piece of external evidence necessary to establish his theory. Archæology and topography thus unite with history and literature in testimony to the fact that sugar was both grown and refined in the valley of the Tigris and Euphrates as early as the tenth century, when the Caliphate of the Abbasides was in its glory there.

CHAPTER VI.

SUGAR AROUND THE MEDITERRANEAN SEA.

To the Mohammedans also belongs the glory of having given the sugar cane to the western world. In their conquests and wanderings out from their Asiatic home, they carried the cane with them and planted it along the line of their march wherever conditions were favorable. The result was a series of plantations about the Mediterranean Sea which testified to the presence of the Mohammedan conqueror. The principal areas of cultivation on this westward journey of the cane were in southwestern Asia, in Egypt, in the islands of the Mediterranean, chiefly in Sicily, in the northwestern part of Africa along the Atlantic seaboard, and in southern Spain. The exact chronology of this transplanting of the sugar cane has never been determined with certainty. That, however, it was transmitted from place to place by the Arabs during the era of their supremacy and conquest is established beyond a doubt. Only in the case of Egypt is it believed that the introduction of the cane was not due to Arab invasion. In this instance evidence points rather to the fact that sugar cane was first brought to the upper valley of the Nile by the Copts in their commercial intercourse either with India direct, or with the peoples at the head of the Persian Gulf; and that once established in this neighborhood it was handed on along the Nile in a northerly direction nearer and nearer to its mouth. Recent research has firmly established the fact that this early trade route from southern Asia to these parts of Africa did exist, and this theory of Ritter, which he bases upon literary and historical evidence, as well as upon conditions in Egypt itself, adds one more argument in its favor. The Arabians, it should be remembered, entered Egypt from the north, and if they had introduced the cane its culture must naturally have spread from the mouth of the Nile southward, which is quite contrary to

the probabilities of the case as these are understood in the light of latest research.

The cultivation of the cane in southwestern Asia, that is, in Syria and Palestine, must have been introduced there by the Arabs at some time between the seventh century, when they took possession of this country, and the time of the Crusades. The crusaders found the cane growing in Palestine, and brought back to Europe glowing reports of this wonderful reed which had so refreshed them in times of great hunger and weariness. From Palestine the Arabs apparently carried the cane out over the islands of the Mediterranean Sea. In Cyprus, Rhodes, Malta and Morea flourishing plantations were established, and also in Sicily. Sicily, indeed, seems to have been the first place outside of Asia where the sugar cane was grown. There are records which prove that it was taken there and cultivated by the Arabians certainly in the tenth century, and possibly in the ninth. It has been suggested that sugar was introduced into Sicily from Egypt, but the evidence for this is not very strong, and the exact means of the transmission of the cane to Sicily must remain for the present, at least, undecided. The culture of the cane in this island became a most important and profitable pursuit, and sugar yielded large incomes to the Government for many centuries. So famous indeed had Sicilian sugar become in the fifteenth century that the ruler of Portugal, when he desired specimens of the cane to plant in the Madeira Islands, turned to Sicily as the land from which the best cuttings could be procured. Sugar was carried by the Mohanmedans, also, across Africa to its northwestern coast. In the twelfth and thirteenth centuries there are references to sugar plantations in this neighborhood. Sus al Aksa, in the Morocco of to-day, and Ceuta, on the Straits of Gibraltar, are mentioned as centers of its growth. The actual way in which sugar entered Spain has never been determined, so many possibilities exist, and so little certain knowledge of the subject. It may have been carried there from Sicily, or from the immediately opposite African shore. In the twelfth century allusion is made to it as growing in the neighborhood of

Seville, which lay, it should be noted, very conveniently near Ceuta on the African coast. There is not in these earlier days any evidence to show that sugar was extensively cultivated in Spain. That, however, the use of this commodity was establishing itself in this peninsula during those and succeeding centuries is amply proved by the persistency with which the Portuguese and Spanish, in the absence of plantations on their own native soil, still procured sources of supply in the world to the west of them.

The production of values by exchange in sugar and by the refining process began in this period, also, to assume considerable proportions. From each of these areas of cultivation around the Mediterranean Sea there was, so to speak, a secondary migration, not of the cane itself, but of its product, sugar, which was distributed from these centers by traders who carried it over the surrounding countries where the cane itself was not grown. The early commercial activity of the Venetians in the Mediterranean Sea soon adopted sugar as one of the chief commodities in exchange. Dr. Benjamin Moseley declares that even prior to 991, "the Venetians, then forcing their commerce with the Saracens into Syria and Egypt, brought back . . . not only rice, dates, fena, cassia, flax, etc., but also sugar."¹ In another place in his essay he says, "The Venetians, anterior to the year 1148, imported considerable quantities of sugar from India by the Red Sea, and also from Egypt. Sugar was likewise made before then in the island of Sicily. With the produce of this island and the sugar imported from India and Egypt the Venetians carried on a great traffic and supplied all the markets of Europe with this commodity."^{2 3}

¹ Moseley, l. c., p. 71.

² Moseley, l. c., p. 71.

³ This statement of Moseley's evidently rests for support on an entry in Anderson's "Treatise on Commerce," for the year 1148. It reads as follows: "Several authors agree that about this time there were very considerable quantities of sugar produced in the Island of Sicily, with which the Venetians traded to the ports in the Indian Ocean as well as with the sugars of Egypt and what was brought thither from the Red Sea." Although in the commerce of Venice sugar in those years played so

It was in Venice also, the seat of the sugar trade, that the art of refining sugar in the modern sense of the word was discovered. The close and necessary interrelation that exists between the refining of sugar and its extensive appearance as an article of trade, is by this very fact strongly emphasized. It is to appear again, in a succeeding century, when Antwerp becomes at once the center of the refining industry and of commerce in sugar, and is to find its greatest example at the close of the seventeenth century, when the great powers of western Europe become at one and the same time the cultivators of the cane and the refiners and exchangers of its product. In the earlier days, however, these jurisdictions in the production of values were in great measure separate, and while some countries planted and watered, it was left to the rising city of Venice to bring forth the final increase by her industry and trade. The refining of sugar is absolutely essential, as remarked above, if this commodity is to become a staple article of trade. Only in a refined or more or less crystallized form can sugar be preserved for any length of time, or transported with facility. Ritter has even gone so far as to point out the counterinfluence which the refining of sugar had upon the cultivation of the cane. He shows that refined sugar was accessible through the channels of commerce to all the outlying districts of the earth, and that this accessibility naturally created a demand for the commodity which could be met only by increasing the areas of cultivation of the sugar cane.

important a rôle, we have no reason to believe that it was then used at all generally among the people of Italy itself. The climate of Italy was too cold for the successful cultivation of the sugar cane, and for some reason the Italians do not seem to have demanded the product from the surrounding warmer countries—at least not until the age of the holy wars, when the crusaders returned from Palestine with their wonderful accounts of the sweet-tasting reed which they had found growing there. This is further attested to by Ritter, who says: "In Italien mag der Zucker durch einzelne Handelsleute der Amalfitaner, Venetianer u. A. schon lange vor den Kreuzzügen eingeführt worden sein, aber die Kreuzfahrer verbreiteten erst allgemein den Geschmack und Gebrauch dieses Aromas das seitdem aus dem Medicament zum Gegenstande eines Luxus des täglichen Lebens wurde durch das ganze Abendland."—Ritter, I. c., p. 401.

In 1470 a Venetian discovered the art of refining the juice of the sugar cane, and received one hundred thousand crowns for his invention, a fact which in itself suggests very strongly what must have been the importance already attached to sugar as an economic good. Up to this time the sugar in use about the Mediterranean had been imperfectly refined, and was probably cruder, even, than that which had been formerly made at Jondisapur. By this discovery at Venice, however, large clear crystals of sugar candy were made, and later by the application of constantly improving means and methods of production the Venetian sugar refiners succeeded in offering to the world the far-famed "*pains de Venise*." These were, as is well known, in the shape of cones and loaves, and were so far superior to anything that had been produced before that the demand for them spread with great rapidity over the surrounding European countries.

It was not only, however, in the realm of production that history was making itself in this period with regard to the sugar cane. In the consumption of this good, also, great changes were taking place. It was during this era of the Mohammedan supremacy, namely, that sugar ceased being used merely as a medicine and began to be consumed as an article of food. Circumstances as they existed among the Mohammedans all combined to make this transition almost a necessary one. As a medicine sugar was naturally very expensive. It was at first, most probably, produced outside of India only in botanical gardens, as at Jondisapur, and at great expenditure of energy and trouble. The ordinary difficulties attendant upon the cultivation of the sugar cane are at all times greater than those incurred in raising almost any other agricultural product, and, as already shown, the smaller the scale at which sugar is produced the greater is the relative expense. It was therefore only as a medicine that sugar could first have found a place among the utilities of a people outside of India, its original home, where conditions were so pre-eminently suited to its production, and where, from time immemorial, apparently, it had been an established food of the people. Its adoption as a food among any people who were not accustomed

to it must of necessity have been very gradual, since the cost of production was comparatively so great in the first stages of its cultivation that it must have been reserved for those demands whose utilities were very high. Medicine is by its peculiar nature always rated at a very high utility, since often even life itself is dependent on its consumption, while the very small quantities in which it is consumed make it possible that a very high price can be paid for it. The desirableness of sugar as an article of food must have become evident as soon as it was consumed in any capacity, for its sweetness was calculated to satisfy a fundamental want of man's sensory nature. It is therefore evident that only the stimulus of objective forces and conditions were necessary to insure the expansion of its consumption, and these forces and conditions were, as it happened, present among the Moham-medans, in the form of great stores of wealth which enabled them to pay the necessary price for this article of luxury.

CHAPTER VII.

THE DISCOVERY OF AMERICA.

The introduction of sugar into Spain was the stepping-stone over which the cultivation of the cane came into contact with the civilization of western Europe. For, although the Moors were at that time dominant in the Spanish Peninsula, their supremacy was shortly to fall before the rising powers of the West, and the Mohammedans at their expulsion from Spain were to leave behind them, among their other rich gifts to modern civilization, the cane fields of Granada and Andalusia. The significance of this cane culture in Spain, carried there in mediæval times, was not to be realized, however, until the modern era set in; for it was in this latter age that sugar attained its fullest importance as an economic good. The fact, therefore, of its presence in Spain where these two eras came together, where the last and greatest people of the Middle Ages was brought face to face with the first great state of western Europe—this fact, to repeat, contains in it all the possibilities which appeared in their full fruition in the subsequent history of sugar.

As the Christian states grew stronger in Spain, events shaped themselves rapidly which were to lead naturally to the demand on the part of the inhabitants of the country for the product of the cane. With the growth of their prosperity the demand for the pleasures of the senses was increasing rapidly, and men were striving instinctively to find means to satisfy this demand. Trade with the East had brought the knowledge of Oriental luxuries to the Europeans, to whom these articles now appeared as essential to comfortable well-being. In close touch with this "consumers'" desire for the luxuries of the East there was on the production side a complementary demand equally great. The many traders of the day, and those engaged in adventures and enterprise, saw

in this commerce with the East a way to increase their treasure and so to procure great prestige and distinction. And, finally, overtopping and completing all, there were the governments of the European states, just beginning to take on a semblance of nationality, who were eager as were their individual citizens to obtain power and position among their neighbors through the great wealth which foreign commerce would bring. Thus the desire for national prestige and the individual desire for social prestige and sensory satisfaction stood side by side as the great motive forces which were to lead these adventurous seamen toward the Western World.

The growth of wealth in the countries of western Europe during the latter Middle Ages had, as already stated, led to a "vast increase" of the trade with India. The travelers who in the thirteenth century had gone to Asia brought back with them marvelous tales of the world-old civilizations there. Coloring these narratives with the pictures of their own excited imaginations they succeeded in stirring those who heard or read of them to attempt to procure for themselves some of the fabled eastern treasures. In the fourteenth century the Venetian and Genoese traders were moved to attempt explorations in the East, and in the fifteenth century, when the mercantile classes had begun to accumulate their wealth, more and more interest centered in these eastern stores, and the eastern trade assumed even larger proportions. This trade had already grown considerably, notwithstanding the many disadvantages that it was compelled to encounter. It was in fact these very disadvantages that led later to the discovery of America, in this way: by making it necessary for the nations of the Atlantic seaboard of Europe to attempt to open up a new trade route which should be unhampered by the obstructions that lay along the old road between Europe and the East.

Communication with India and the far-famed "Cathay" was hampered in so far as all Europe was concerned by the fact that the Mohammedans had taken possession of all the lands through which the trade routes lay, and demanded exorbitant tolls and

other charges, thus diverting the profits that might otherwise have accrued to the Venetian and Genoese merchants. "To carry this trade, therefore, direct to India," says Payne, "became the dream of the age."¹

The maritime states of western Europe, which were then beginning to attain to some sort of political as well as economic power, also suffered an extra disadvantage from the old trade routes. The Mediterranean traders, possessing as they did a practical monopoly, furnished eastern goods to these western customers only at prices high enough to cover all the Mohammedan charges, and also an extra profit for themselves. Both these causes combined, *i. e.*, the Mohammedan occupation of the commercial centers, and the Italian monopoly of the Mediterranean trade, to bring the balance of trade in favor of the East. Payne says, apropos of this:

"Beside the valuable exports of Europe, such as iron, copper, quicksilver, timber, slaves and corn, the ships of Venice alone brought yearly three hundred thousand ducats in coin to Alexandria. This is but one instance of an extensive process, and from it we may gather some idea of the extent of this drain of bullion from the west to the east. Such a drain the scanty mines of silver in Europe were totally unable to support. The growth of the Indian trade thus naturally led to a serious and perplexing dearth of the precious metals. In the fifteenth century the purchasing power of gold and silver in Europe was double the same power in the century preceding, and the produce of Europe was universally depreciated in a corresponding degree. Some direct communication, if possible, of Europe with the East, leading to a readjustment of this disturbed balance, thus became an economic necessity."²

While Europe was thus looking to the fabled East as to the source of gold and pearls, and of spices and rich silks—that is, translated into economic terms, of wealth and distinction, and of luxury in food and dress, another market nearer home was opened up to her people, which offered them opportunities for satisfying in new and unexpected ways many of their old desires. This was the western coast of Africa, that Portuguese enterprise

¹ Payne, "History of the New World, called America," 1892, I, p. 54.

² Payne, *l. c.*, I, p. 71.

had revealed to Europe as a great trading station for gold dust and slaves. From these fields great stores of riches could be procured and great numbers of Africans could be brought and sold into slavery, thus to make the lives of the wealthy, leisure and luxury-loving inhabitants of the Iberian Peninsula still more luxurious by their constant service and attendance. Nor were the social wants left ungratified, for a large retinue of such creatures invariably procured great social prestige to their owner or proprietor. The Portuguese ruler himself sent many slaving expeditions to the coast of Africa, where the Mohammedans had long been engaging in the traffic, and demanded one-fifth of the returns from all the private ventures. "The impulse which grew from the hope of gain," says Payne, "was diffused through all ranks of society, from the sovereign at home to the needy adventurer who risked his life among savages on a barbarous shore."³

These ages of unrest led naturally to the voyages across the Atlantic, and so to the discovery of America, their inevitable outcome. Linked with the economic phases as outlined above, the intellectual uneasiness and curiosity and the religious enthusiasm of that time were quick to respond to those other forces which were leading men on in the search for satisfaction, both social and sensory. All the institutions of that day were brought into line with this dominant tendency. Slavery itself was condoned by the Pope under the claim that it was to the advantage of the wretched Indians to be brought from the paganism and savagery in which they had been born, and to be put under Christianizing and civilizing influences.

The lands in America that the Spaniards discovered in their search for India were, naturally, called upon by the European nations to serve as a substitute for the eastern countries they had hoped to find. Where powers of substitution failed, moreover, they were forced to furnish, in ways peculiar to themselves, gratifications for the desires of these western peoples. In looking to the East, Europe had expected to find gold and pearls as the chief forms of treasure, and, in addition to these, all those costly

³ Payne, l. c., I, p. 99.

Oriental products both of nature and of art which were fitted to delight the pampered taste of her people. Of all of this list, the only article which they actually found in America was gold, and even this they did not discover in the form which they were seeking. They had expected to find it in the shape of rich ornaments and vessels, such as befitted the Hindu civilization, and instead of this they came upon it only as a dust in the sands of the river beds, from which it had to be extracted by great toil and suffering of a subject people. Gold, however, inasmuch as it is the symbol of wealth, is always the source of prestige and power, and the form in which it may exist influences but little its real significance. The Spaniards, therefore, were not disappointed in so far as gold rewarded their explorations in America.

Beyond this treasure this primeval country offered none of those things that her discoverers expected to find. India, "the rich and populous fairyland," "full of everything that man's heart could desire," with her "wealth and luxury and splendor," and Cathay, with her "rich and vast cities and numerous and civilized people," had proved for them but the figment of a dream, and instead of all the rich civilization of the East, they found themselves face to face with only "forest-clad islands . . . sparsely occupied by an utterly savage race" whose whole wealth consisted, beside their daily bread, only in a few cotton cloths and baubles. Such were the actual utilities of these people; but in their land there lay for the Spaniards great stores of potential utilities, according to their various desires, and the only course open to them, in the failure of the finished goods which they had fondly hoped to find, was to apply themselves to a converting of these potential utilities into actual utilities. In the case of Spain, indeed, this process was never so systematically carried on as it was later under England, for the Spaniards were always too eager for the golden treasure of their lands to apply themselves to a more careful scheme of cultivation. To a degree, however, they did put them under agriculture, and it is indicative of the extent to which the Spaniards craved sugar that this was one of the first things cultivated in their western plantations. The

Portuguese had begun to plant the cane on the Atlantic Islands nearer the African coast before America was discovered, moved thereto, in a measure, by the ever-increasing obstacles to eastern trade. The activity of the Spanish in America was clearly a continuation of this same process. A growing demand for the good, and an ever-decreasing market, furnished the two most powerful stimuli to an increase of supply.

CHAPTER VIII.

THE DEMAND FOR SUGAR IN EUROPE.

The demand for sugar in western Europe was not confined in those early days exclusively to the Spanish Peninsula. Its use had already spread to England in the thirteenth century, 1264 being the date of the earliest price quotation there, the prices quoted ranging from one shilling to two shillings per pound.¹ These high prices continued in England with many fluctuations during the fourteenth and fifteenth centuries, and indicate that the demand in England must have been great in proportion to the available supply. Mr. Thorold Rogers has found it necessary to account for these high prices and their wide variations on the ground of the "scanty and variable nature of demand and supply of so expensive a luxury."² From the side of England, then, there was encouragement for anyone who contemplated the expansion of the area of sugar cane cultivation. Moreover, conditions in England at that time were such as to make possible an effective demand for the good things of life. The fourteenth and fifteenth centuries were marked by the growth in wealth and distinction of the mercantile classes there. "This," says Cunningham, "may be clearly shown from their increasing organization and the formation and incorporation of companies of merchants, each of which

¹ The full significance of this high price of sugar appears when it is remembered that money then was worth about twenty times what it is worth now. From this computation the price of sugar then, translated into modern terms, would have been from one to two pounds sterling per pound. When it is realized, also, that wheat in 1264 was selling at from three to six shillings the quarter of eight bushels, or in modern terms at from seven and one-half to fifteen shillings per bushel, the full extent to which sugar was a superfluity and a luxury becomes apparent.

² James E. Thorold Rogers, "History of Agriculture and Prices in England," 1866, I, p. 633.

dealt in a particular class of goods.”³ Cunningham goes on to show that the various centers of trade in England were centers of considerable wealth, a fact for which he brings proof from the lists of the various towns, with the amounts received from each, from which Richard II found it necessary to borrow money for carrying on his government. From the lists which Cunningham reproduces one may readily see how largely the various English towns were drawn on in this levy, and how significant this fact was for the state of English society. “When,” says Cunningham, “the towns were able to contribute in this fashion, we may see that there was already a class of moneyed men not only in London, but in provincial towns as well, who were able to bear a large part of the burdens which had hitherto been defrayed by the landed interests, either ecclesiastical or lay.”⁴ In the fifteenth century the merchant classes of England attained such prestige that they at times entertained even royalty itself.

Nor was France much behind England in her demand for luxuries. White sugar is mentioned in the accounts of the household of the Dauphin du Valumois Humbert II for the year 1333, and also in an ordinance of John II, in 1353. In 1420 Eustace Deschamps, a poet, mentions sugar as one of the greatest expenses of a ménage. “For a long time in France,” says Figuier, “they sold sugar only in medicinal quantities,”⁵ and he ascribes the high price of it in the fourteenth and fifteenth centuries to the fact that the Venetians at that time had the monopoly of the commerce of the Mediterranean, and could thus regulate prices through their control of the supply. However this may be, it is evident that the high prices paid in France, by indicating a demand for sugar, must have acted as an extra inducement to the transportation of the cane to the Atlantic islands by the inhabitants of the Iberian Peninsula.

In Spain at that age there was a like era of general prosperity.

³ Cunningham, “Growth of English Industry and Commerce.” I, Early and Middle Ages, 1890, p. 340.

⁴ Cunningham, *l. c.*, Early and Middle Ages, 1890, p. 344.

⁵ Figuier, “Les Merveilles de l’Industrie,” II, p. 144.

Castile in itself had long enjoyed a certain measure of economic prosperity through the early development of its towns. Forced into cohesion by the invasions of the Arabs, these small political units early reached a state of solidarity unknown at that time in other parts of Europe, and this political strength was accompanied by great production of wealth. From the Arabs the people had learned "a better system of agriculture and a dexterity in the mechanic arts unknown in other parts of Christendom."⁶ "Augmentation of wealth," Prescott declares, "the usual appetite for expensive pleasures, and the popular diffusion of luxury in the fourteenth and fifteenth centuries is attested by the fashionable invective of the satirist and by the impotence of repeated sumptuary enactments."⁷ When Ferdinand and Isabella united under the crown of Spain the two kingdoms of Aragon and Castile, the economic well-being of the country received fresh life, for all the energy that these two states had spent in struggle with each other, and in vying for superiority, could now be put to developing the resources of Spain as a whole. Trade and industry were accordingly fostered and protected, and in their joint reign the "grand period of Spanish history" was ushered in. "At the beginning of the sixteenth century," says Bernard Moses, in a study of Spain at that time, "Spain stood in relation to other nations of Europe economically higher than she ever stood before or has ever stood since."⁸ The chief significance of this period, both in England and in Spain, for the history of sugar, lies in the development of moneyed wealth which was taking place in both of these countries at that time. Such wealth naturally brought with it, as already pointed out, a demand for articles of luxury, and, as subsequent years have shown, sugar occupied in this economic movement a position of no slight importance, since among the luxuries then demanded sugar stood in the first rank.

⁶ Prescott, "History of the Reign of Ferdinand and Isabella," edited by John Foster Kirk, Philadelphia, I, p. 27.

⁷ Prescott, l. c., I, p. 29.

⁸ Bernard Moses, "The Economic Condition of Spain in the Sixteenth Century," published in the Annual Report of the American Historical Association, 1893, p. 125.

CHAPTER IX.

SPANISH AND PORTUGUESE ACTIVITY.

The westward migration of the sugar cane belongs in its earliest stages to the activity of the Portuguese navigators. In their voyages toward the south, undertaken in the hope of finding a new trade route to India around southern Africa, they carried the cane with them and planted it on newly discovered lands. As early as 1422 it was brought to the Madeira Islands by Henry of Portugal, and by 1472 it had been carried as far south along the west coast of Africa as the island of St. Thomas, on the equatorial line.

Great diversity of opinion exists, however, among those who have attempted to say just how the sugar cane finally reached the New World. The controversy hinges on the question as to whether the sugar cane was originally a native of America, or whether it was introduced by the Spanish discoverers. The weight of evidence seems to rest with those who claim that the cane was not indigenous to American soil, but was brought from Europe in the first years of the sixteenth century. The real significance of the discussion for the present study is not very great, and the various details of proof need not be adduced. Whichever side is right, the essentially important fact remains, to wit: that the economic conditions of the times were such that the Spaniards found it to their interest and advantage to plant and cultivate the cane in their American possessions. For all men are unanimously agreed, that however and whenever the cane may have been introduced into America, the stimulus to the development of its later culture was brought to the New World with the adventurers from the old, and that the whole phenomenon of the sugar plantations in America belongs exclusively to the period of European occupation of her shores. It is of small moment, also, whether the cane was taken first to Brazil and then brought to

the West India Islands from this South American colony, for here again the significance centers in the application of European capital to the cultivation of the sugar cane in these undeveloped lands, regardless of which of them may have been the first to receive it.

For any permanent change in the supply of an economic good, psychic and physical circumstances must be favorable. In other words, there must be an increased demand, and, as complementary to this, certain external conditions of environment must exist, which make it possible for the increased demand to become actually effective. In analyzing the circumstances under which the expansion of sugar culture from Europe in the fifteenth and sixteenth centuries took place, just such a favorable combination of psychic and physical factors is seen to have been at work. On the psychic side there was the generally increasing demand for all forms of luxury that has already been dealt with at length. Beside this, there was a much more specific stimulus in the consumption of a Spanish colonial product, newly introduced into Spain, and calling for sugar as its complementary good. This product was the fruit of the cacao tree, which had been used and cultivated by the American Indians long before the Europeans found their way to the shores of the western world. "The bean," says Payne, "was at once introduced into Europe (after its discovery in America by the Spaniards), where a demand for it speedily arose."¹ "Spain," adds the article in the *Encyclopædia Britannica*, "was the first nation in which its use became common, and to this day cocoa is more extensively consumed among Spaniards than by any other European community."

It did not take the Spaniards long to recognize the great value of cacao as a condiment, a food and a stimulant, and they early began to cultivate it themselves in their American possessions. "Cacao," says Payne, "usually though not universally preceded other objects of tropical agriculture in the West Indian Islands, the reason being that, as compared with sugar and tobacco, it required little expenditure of either capital or labor. From cacao,

¹ Payne, l. c., I, p. 424.

as they became richer, the planters turned to the more profitable culture of sugar, tobacco and indigo, and hence the cultivation of this earliest special product of tropical agriculture in the New World tended to diminish where European capital was abundant, and to become more and more restricted to the districts where it had originated."²

This apparent shrinkage in the area of the cultivation of cacao after the first expansion under the stimulus of European demand was associated with another fact of great importance in the economic and social history of Europe. This was the introduction of tea and coffee. Although these two eastern products entered Europe later than chocolate,³ so popular did they immediately become, that before many years had passed they had in great measure usurped the place held up to that time by cacao. Payne has enumerated the reasons why this should have come to pass. He says:

"Owing to the state of international relations, the cacao of Spanish America was less easily procured than the corresponding products of the East. Coffee and tea, moreover, were more easily prepared, required no admixture of other ingredients and proved better suited than chocolate to the taste of the people of Northern Europe. The last-named beverage nevertheless has held its ground. Its fine aromatic quality, its cheapness, the comparatively mild stimulus which it communicates to the nervous system, and the positive alimentary properties which it largely possesses, render it in the present day of increasing importance, and the cacao tree may fairly be assigned a rank with maize, manioc and potatoes among the

² Payne, l. c., I, p. 424.

³ The use of the three terms, cacao, cocoa and chocolate, in connection with this one commodity requires perhaps some explanation here. Cacao is properly applied to the tree itself. It is defined by the Century Dictionary as follows: "Cacao—the chocolate tree. The seeds when roasted and divested of their husks and crushed are known as cocoa nibs. These are ground into an oily paste and mixed with sugar and flavoring matters to make chocolate—the most important product of the cacao. Cocoa consists of the nibs alone, either unground or ground, dried and powdered, or of the crude paste dried in flakes." Under "Chocolate" I find: "Cacao, under its native name of chocolatl, had been used as a beverage by the Mexicans for ages before their country was conquered by the Spaniards." Under "Cocoa" the following explanation of the term is given: "Cocoa

chief benefits which the discovery of America has conferred on the world at large."⁴

In considering thus the relation between cacao and coffee and tea I have anticipated the events of about a century and a half, for these two last-named beverages were not introduced into Europe until the middle of the seventeenth century. One fact, however, which Payne has mentioned incidentally in the above quotation had very vital importance for cacao in the earliest years of its European experiences. This was the fact that the cacao bean requires in its consumption the "admixture of other ingredients." The fruit of the cacao trees can never be consumed alone. The American aborigines pounded the bean and maize together into a paste, which they consumed either as it was or as a liquid made by adding hot water in sufficient quantities. Among the European nations sugar has been universally selected as the most general admixture for cocoa, and it is to this fact that the great importance of chocolate for the present investigation is due. The introduction of cacao into Spain followed very closely upon the Spanish discovery of America, and the subsequent popularity of this article doubtless added greatly to the already existent demand for its complement, sugar. With these general and specific causes at work, the expansion of the culture of the cane to Spanish America was the most natural consequence, especially since the physical conditions there were peculiarly favorable.

In the tropical parts of America nature seems to have done her uttermost to bring together all the circumstances of soil and climate and position which are best suited to the growth of the sugar cane. Wray's "Practical Sugar Planter" makes the following statements with regard to the essential climatic features:

"The climate most congenial to the sugar cane plant is of a warm and moist character, with moderate intervals of hot dry weather tempered

(a corruption of cacao by confusion with cocoa, coco, [a palm belonging to the genus *Cocos* producing the cocoanut]). . . . the ground kernels of the cacao and chocolate tree." From this it is clear that cacao refers to the tree, cocoa to the product of the tree unmixed with other substances, and chocolate to the product ground and mixed with various substances.

⁴ Payne, l. c., I, p. 425.

by the refreshing sea breezes.⁵ It has already been found to grow most luxuriously on islands and along the seacoast of mainlands, which leads us to suspect that the saline particles brought on sea breezes are very favorable. . . . Within the tropics the cane attains its greatest perfection. Cold to any degree does not suit its growth or development. Hence it cannot be cultivated with success in Europe, although it has often been tried in Spain. . . . In the West Indies periods of hot, dry and rainy weather are well defined and pretty regular, and the planters commonly choose spring and fall as the most eligible times for planting out their fields in cane, but on some estates canes are planted and manufactured all the year round.”⁵

The ideal conditions for the cultivation of the cane here enumerated by Wray were realized in the West India Islands and on the adjacent shores of America, ready to be utilized when the demand for sugar arose among European peoples. The planting of the cane, therefore, in these parts of the New World was but the bringing of these two factors—demand and supply—together into a favorable economic conjuncture.

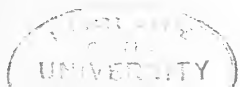
The culture of the sugar cane in America prospered accordingly. The first of the West India Islands on which it was grown was Hispaniola or Hayti, and from Herrera we learn that it throve there so well that the Jeronomite friars, who were sent to the island in 1515, issued orders that every inhabitant who would erect a sugar mill should have five hundred pieces of eight in gold lent to him. By this contrivance there were, Herrera declares, forty water or horse sugar mills on the island.⁶

In Spain, also, there was evidence of the profit which accrued to the mother country from these sugar plantations in the New World. Charles V is known to have obtained funds for his palace building at Madrid and Toledo, from the dues levied on imports (of sugar) brought from San Domingo to Spain.”⁷ The growing commercial importance of the Spanish colonies to the mother country is well attested by the gradual extension in Spain of her organization of the trade relations with her American possessions, in which commerce sugar had an increasingly important

⁵ Wray, l. c., p. 48.

⁶ Herrera, II Decade, Book II, p. 155.

⁷ Encyclopædia Britannica, XXII, p. 658 a.



part. The famous "Casa de Contratacion or House of Trade" was established at Sevilla in 1503 to arrange all matters of commerce with the colonies and to supervise and manage all export and import cargoes. The powers granted to this body at its first organization were very extensive and full, and although they were later somewhat limited by the erection of the Council of the Indies, this House of Trade at Sevilla continued to be the great commercial medium between Spain and her colonies. Its constitution was finally settled in 1543 by the *Ordenanza de la Casa*. "C'est par la Casa," we read, "que passeront toutes les richesses fabuleuses de l'Amérique Espagnole pour être réparties aux ayants droit, y compris la part royale."⁸

This was clearly the era of Portuguese and Spanish supremacy in the sugar world, and the cultivation of sugar was steadily extended by these peoples throughout the sixteenth century.

According to Ritter, the cane was taken to Brazil in 1531.⁹ Brazil was long the source of the finest sugars that were made, and in the early years of the English cultivation of the cane the great object of the English planters was to equal the product of the Portuguese colony. The date of the introduction of sugar into Cuba is most uncertain, various writers claiming various dates from 1535 to 1580. According to Alexander von Humboldt, who waives the question of the exact date of the first sugar cultivation there, the island did not in any case participate in the sugar industry to any extent in the sixteenth century, so that its whole significance belongs to a later era.¹⁰ The island of Hispaniola, on the contrary, seems early to have attained great importance as a sugar colony. In 1562 the slave trade was very profitable there—a reflection of what the sugar industry must then, also, have been. In that year Sir John Hawkins took some negroes there from Guinea, "where he sold his negroes and English commodities, and loaded home his three vessels with hides, sugar and ginger, and also many pearls, returning in the year 1563, after making a prosperous

⁸ Lavissee et Rambaud, "Histoire Générale," 1894, IV, p. 919.

⁹ Ritter, l. c., p. 409.

¹⁰ Alexander von Humboldt, "The Island of Cuba," 1825, translated by Thrasher, 1856, p. 251.

voyage.—This seems," Anderson adds, "to have been the very first attempt from England for any negro trade."¹¹

The monopoly of the sugar trade was in these years in the hands of the Portuguese. Spain managed the carrying of her own sugars, as is evident from the very exclusive commercial policy that she adopted at that time. "No foreigner," says Mr. Egerton, "might enter a Spanish colony without express permission, and the penalty of death was enacted against the colonist who should trade with any foreign ship. Even the intercourse of colony with colony was either absolutely prohibited or limited by severe restrictions."¹² The bulk of the transportation of sugar at this time rested, nevertheless, with the Portuguese. Their great colony of Brazil, according to Mr. Egerton, their "one example of genuine colonization,"¹³ afforded them an unfailing source of supply to be carried to the refiner and consumer in Europe. In their expeditions about Africa, also, sugar formed a favorite cargo. Portuguese sailors visited Madagascar as early as 1506, and in 1515 there are accounts of the tales they told of the sugar cane growing on that island. During the rest of the century, also, their voyages around Africa did not cease, and sugar was brought in increasing quantities to Lisbon, both from these plantations in the southern Atlantic and from the American cane fields. Figuier and Butel-Dumont,¹⁴ in their comments on the sugar trade, unite in declaring that during the sixteenth century and the early years of the seventeenth the Portuguese navigators retained the naval supremacy in their hands, among the nations of Europe, and as a part of it the monopoly of the carrying trade in sugar. "Lisbon owed to this traffic," says Figuier, "together with the commerce with India, the greatest splendor. But various causes contributed to take from them this source of wealth. The Portuguese fell under Spain, and the establishments of other European nations in the West Indies . . . began to cultivate sugar."¹⁵

¹¹ Anderson, l. c., II, p. 117.

¹² H. E. Egerton, "Origin and Growth of the English Colonies and of Their System of Government," 1903, p. 44.

¹³ Egerton, l. c., p. 45.

¹⁴ Ritter, l. c., p. 383.

¹⁵ "Histoire et Commerce des Antilles Angloises," attribué a M. Butel-Dumont, 1758, p. 210.

¹⁶ Figuier, l. c., II, p. 10. ✓

CHAPTER X.

THE ENGLISH REFINING INDUSTRY.

Even during the period when the Portuguese were still supreme in the raising of sugar and in transporting it to Lisbon, the people of the Netherlands were taking to themselves the refining industry and the actual distribution of sugar to European ports. The Dutch in the sixteenth century were accustomed to call at Lisbon and carry the sugars to Antwerp, where they were refined, for Antwerp was during this century the great center of the refining industry. Antwerp was, says Anderson, "the most celebrated magazine of commerce in all Europe, if not of the whole world, it having been at this time a common thing to see two thousand five hundred ships in the Scheld laden with all sorts of merchandises . . . in one word, Antwerp was then almost what Amsterdam is now, a general store-house for the whole world."¹ Antwerp continued to hold her place as the chief center for sugar refining until the latter part of the sixteenth century, when by force of circumstances she finally gave 'way to England, who was to become supreme in this department of producing sugar values long before she possessed the monopoly of the cultivation of the cane, or of the carrying trade.²

¹ Anderson, l. c., II, p. 87, quoted in part from M. Huet, Bishop of Avranches, in "Memoirs of Dutch Commerce."

² The entries in Anderson's "Treatise on Commerce" for the year 1560 throw valuable light upon the part that Antwerp was then playing in the commerce of the world, as also upon the sources and manner of distribution of sugar among the European ports. I have extracted the data relating to sugar and shall review them here. Anderson's notes are taken from "The Description of the Netherlands," by Louis Guicciardini. "As the famous city of Antwerp," says Anderson, "was in this year (1560) in its zenith of prosperity, we imagine that a general view of its commerce at this period (as exhibited by Guicciardini) . . . will not be unacceptable to our curious readers." Sugar, it will also be remembered, was in

Indeed, the first attempts in England at sugar refining were made as early as the first half of the sixteenth century. According to Mr. Reed, who quotes Stow's "Survey of London," two sugar houses were started in London in 1544, but there were at that time so many sugar refiners already at Antwerp, "who could supply refined sugar to England, and cheaper than it could be made at home, that these two houses drew little profit from it."³ The English industry was destined to thrive but little in this respect, and no more than these two original sugar houses were established in London until toward the end of the century the Flemish base of supply was cut off from the English consumer.

The first interruption between England and the Netherlands came in 1568, when the Duke of Alva seized "on the Merchant Adventurers at Antwerp to the value of about £100,000 sterling,"⁴ in

1560 selling in England at 1s. 3d. per pound. The merchants of Antwerp were, according to Anderson's quotations, sending sugar to Germany, and to Denmark, Norway, Sweden, Eastland, Lavonia and Poland, along with "vast quantities of spices, drugs and saffron." She sent sugar also to England and Scotland, and forwarded it to Venice and Milan, a fact not without significance for European commerce at that time, since it indicates quite clearly that the Venetians had already "found themselves unable to compete with their rivals, the Portuguese . . ." and that the former supremacy of Venice as a trading center had been obliged to yield before the rising power of Lisbon, which had now become the resort of traders from every part of Europe." (Craik, "British Commerce," 1844, I, p. 215). The Lisbon merchants, Craik tells us, also carried the productions of India in so much greater quantities than had ever been known before, to the great intermediate mart of Antwerp, that the wealth and grandeur of the latter city also may be said to have commenced with this date (the sixteenth century). Antwerp received from Portugal most of the sugar that she again exported. Portugal, in her turn, had it (according to Guicciardini) from "St. Thomas under the equinoctial line and from other isles on the African coast," and from Madeira. Spanish sugar from the Canary Islands, and the sugar of Barbary, also found its way to Antwerp at this time. "No sugars," adds Anderson, "were as yet brought from Brazil nor from any other part of America." (Anderson, I. c., II, p. 113.) To this last statement I have later taken most decided exception. See pp. 67 sq.

³ Wm. Reed, "History of Sugar and of Sugar Yielding Plants," 1866, p. 10.

⁴ Anderson, I. c., II, p. 127.

retaliation for a seizure by English sea-rovers of some treasure that Spanish ships were carrying to the low countries. "The breach with Spain that followed," says Cunningham, "and the interruption of the Netherlands trade, led to the transference of the Merchant Adventurers' factory from Antwerp to Hamburg, where the trade was carried on successfully for some ten years, till the Hansards drove them out."⁵ It is, therefore, most probable that in 1568 the English were obliged to turn to refining sugar for their own use. Seventeen years later, when the Duke of Parma, in 1585, completed the sack of Antwerp and the destruction of all her shipping and industry, the English were driven decisively to undertake the refining of sugar. It passed as by natural right across the North Sea from Antwerp to England, where the merchants immediately began to grow wealthy from this pursuit. From that date England became the chief seat of the refining of sugar in Europe. After the sack of Antwerp, Reed says, these two sugar houses already established supplied England with sugar, "and became so wealthy that many other persons embarked on the business,"⁶ and Moseley adds in his treatise that "England, which had formerly been supplied with refined sugar from Antwerp, the chief commercial city then in Europe, now not only supplied itself, but exported great quantities to other countries."⁷ ⁸.

⁵ Cunningham, l. c., II, *Modern Times*, 1892, p. 25.

⁶ Reed, l. c., p. 10.

⁷ Moseley, l. c., p. 73.

⁸ As would be expected, there is in 1585 in England a rise in the price of sugar over that of the period immediately preceding. The higher prices prevail for about two years with slight fluctuation until the end of the year 1586, when, evidently, English capital was able to respond to the extra demand put upon it. The entries in Rogers for 1585 are very numerous, and it is worthy of note that while in 1583 sugar sold in general at about 1 shilling or 1 shilling 2 pence the pound, some of the entries for 1585 showing also this low price, in the latter part of this year the price rises suddenly to 1 and 7 or 1 and 8 the pound.

CHAPTER XI.

INCREASING SUPPLY OF SUGAR.

Despite this early beginning of the refining of sugar in England, the English did not commence to cultivate the sugar cane until well on in the seventeenth century. "We must," says Mr. Egerton, "wait for more than a hundred years (after the voyages of the Cabots) for the first English colony,"¹—and the first ventures in cane culture in the West India Islands were not made until about thirty-five years after the first successful attempt at English colonization in America. During these intervening years events general and specific were shaping themselves in England which were to make her planting of sugar when it should finally come, not an isolated phenomenon, but the natural consequence of the tendency of that age.

That sugar had been consumed in England long before the seventeenth century has already been made clear. As mentioned above, the first account of its use there is for the year 1264, and the entries for the years after that date are increasingly numerous. There were in those early years various kinds of sugar in use in England, distinguished from each other by the names of the localities from which they came, and differing greatly in price. The sugars from Alexandria and Cyprus seem to have been much cheaper than the other sorts, and this can probably be explained on the ground of the very poor refining which was practised in those neighborhoods. In Sicily, in the thirteenth century, this art was encouraged and fostered by Frederick II, so that it is most probable that the most expensive sugars quoted in England then were brought from this island.² In the year 1319 there is the first explicit mention of a shipment of sugar to England. It is in

¹ H. E. Egerton, "A Short History of British Colonial Policy," 1897, p. 13.

² In 1264 "sugar" in England cost 2 shillings the pound, while that from Alexandria is quoted at 10 pence, and in 1334 Cyprus sugar at 7 pence.

Marin's "Storia del Commercio de Veneziani,"³ and records that one hundred thousand pounds of sugar were sent to England, there to be exchanged for wool. There is furnished also a clue as to what sugar was worth in England in that year, for in the accounts of the Chamberlain of Scotland there is an item of the purchase of sugar at one shilling and one-half pence the pound.⁴

Probably owing to the extension of cane culture to the islands near Africa, and the subsequent increase in the supply of sugar, the price in England during the first decade of the sixteenth century was much lower than in preceding years. The majority of the entries in Rogers for this time are quoted at three or four pence the pound.⁵ Relatively low prices continued in England

In the latter year "sugar in cake" is sold at 1 shilling 2 pence the pound. In 1285 there are records of numerous purchases by Earl Clare, who, according to Rogers, "buys two 'pots' designated as 'sugar of roses' and 'sugar of violets,' the former of which costs 14 shillings, the latter 13 shillings." (Rogers, l. c., I. p. 633.) The prices of sugar in England at that time were very various, and Mr. Rogers is inclined to attribute this fluctuation to the "scanty and variable nature of the demand and supply of so expensive a luxury." (Rogers, *Ibid.*) He points out that "in 1285, when the large purchases of Earl Clare are made, the average price of two quantities is 8½ pence, the lowest price recorded, with the exception of the Cyprus sugar of 1334. But in 1264 the Countess of Leicester buys sugar in London on the 29th of March and the 5th of April at 1 shilling, while on July 15th another quantity costs 2 shillings, some of that purchased for the King's Wardrobe being also purchased at the latter rate. In 1392 half a pound of sugar is purchased at Shrewsbury at 2 shillings, and, generally, the article is dearer during the latter half of the fourteenth century." (Rogers, l. c., I, p. 634.) This rise must be due to the fact that the demand in England was growing faster than the available supply, and illustrates without doubt one of the potent causes which led Spain and Portugal to begin to extend the area of cultivation to the islands of the Atlantic Ocean in the latter fourteenth and early fifteenth centuries.

³ Reed, l. c., p. 8.

⁴ Encyclopædia Britannica, XXII, p. 658 a.

⁵ The prices quoted by Mr. Rogers for wheat in this same decade range from 10 shillings the quarter of eight bushels to 3 shillings for the same quantity, or from 1 shilling 3 pence to 4½ pence the bushel. Com-

until about 1545, when they advanced rapidly. This was, as Mr. Rogers remarks, due doubtless in largest part to the debasement of the currency by Henry VIII, although the discovery of silver in America in the latter half of the sixteenth century must also have been in great measure responsible.

In the year 1518 the Turks took possession of Egypt, thus finally closing to western Europe all eastern sources for sugar, as for other Oriental commodities, in so far as the Mediterranean trade routes were concerned. The result of this interruption to commerce was that the prices of eastern products in general rose immediately and to a great height. Other things being equal, it would have been natural to suppose that the price of sugar should have followed this general tendency. Mr. Rogers goes so far as to say that it did.⁶ In examining most carefully his tables, however, I have been unable to find any such advance in the price of sugar as he claims for the years after 1521. In fact, despite the disturbing events in the East, I find in these years persistently low prices of sugar, which I attribute to the steady increase of the supply from the western plantations. Mr. Rogers seems to look only to the East as the source of supply, whereas the whole tendency of the era with which he is dealing was, by extending the cultivation of the cane always farther and farther to the west, to open up independent bases of supply for the nations of western Europe.

This process of the western expansion of sugar culture had been going on for a century in 1521, for it was just ninety-nine years

paring the highest prices quoted in this period for wheat and for sugar, we find that 1 shilling 3 pence for wheat stands over against 4 pence for sugar. Comparing this ratio with that of 1264, namely, 2 shillings for one pound of sugar, and 6 shillings for one quarter, or 9 pence for one bushel of wheat, it is evident that in the first decade of the sixteenth century the price of one pound of sugar was much less compared with that of one bushel of wheat than it had been in the earlier period. The ratios stand as follows:

Sugar (1 pound)		Wheat (1 bushel)	
1264	2 shillings	9 pence	= 24:9
1500-1510	4 pence	1s. 3d.	= 4:15

Reduced to a common denominator these become $\frac{2520}{915}$ and $\frac{252}{915}$.

"If," Mr. Rogers says, "my readers will consult the annual prices or

before that date that the Portuguese carried the first cuttings from Sicily to the Madeira Islands. It had, as already recorded, been going on steadily ever since that date, and all positive evidence goes to show that by the year 1521 considerable quantities of sugar were being brought from these western cane fields into western Europe.

Contemporary writings of this period abound in mention of the flourishing condition of sugar culture in America at this time, and of the large imports thence into Spain. While absolute reliance cannot be placed on what these old chroniclers have said, still it is safe to assume that there must have been a large amount of truth behind such glowing accounts. The action of the Jeronimite Friars in Hispaniola in the early sixteenth century has already

still more conveniently the decennial averages, he may notice that during the twenty years, 1521-1540, a marked rise takes place in all articles of Eastern produce. The progress of the Turkish arms in Western Asia and Eastern Europe had undoubtedly, as it dammed up the old channels of trade and drove commerce into the only course left to it through Egypt, heightened the price of the product continuously for fifty years and more. But the sharpest rise takes place after 1520. The rise is about 30 per cent. on paper, over 40 per cent. on cloves, over 90 per cent. on mace, over 25 per cent. on cinnamon and on dates, then produced entirely in Egypt. The case of sugar is more striking still. In the latter part of the fourteenth century sugar was worth 19 shillings the dozen pounds. It became still dearer in the first half of the fifteenth century. The entries, indeed, are very few, for the price, 24 shillings the dozen, was almost prohibitive, and two out of the three entries are from the expenditures of opulent persons. Nor do I doubt that the price of this article was during this period everywhere in England at such rates as my entries represent, for I am sure that it would have been found at occasional feasts given at the visits of distinguished persons if the price had not been considered too extravagant for prudent purchase, and too much to expect from any host, however grateful, expectant or prudent he might be. Between 1490-1510 it rapidly declines; in 1495 and 1503 it is about 2s. 9d. the dozen. After the conquest of Egypt these latter prices are more than doubled." (Rogers, l. c., IV, pp. 656, 657.) A careful examination of Mr. Rogers's tables does show that the price of sugar did, indeed, begin to rise somewhat after 1510, for while the decennial average for 1501-1510 was 3s. 4½d. the dozen pounds, that for 1511-1520 was 6s. 2½d. For the decade 1521-1530, for which Mr. Rogers claims the sharpest rise, the average price is 6s. 9¼d., as will be seen, a relatively small advance

been alluded to, and need not here be reviewed.⁷ Peter Martyr is quoted by Moseley as having declared that in 1518 there were twenty-eight sugar mills in Hispaniola, established by the Spaniards. He says, "It is a marvelous thing to consider how all things increase and prosper in this island. There are now twenty-eight sugar presses, wherewith great plenty of sugar is made. One root beareth twenty and often thirty canes."⁸ The great revenues of Charles V from duties on sugar have also been referred to above.⁹ Purchas in "His Pilgrimes" writes of His-

over the preceding decade. This same advance of 7d., moreover, is seen also for the years 1531-1540 over 1521-1530, without the influence of any new disturbing causes. These figures seem conclusively to refute Mr. Rogers's statement with regard to the "sharp and sudden rise in the price of sugar" after 1520. The decided difference between the average for 1501-1510 and that for 1511-1520 was most probably due to the Turkish conquests in the East. That, however, this rise did not continue and with much greater emphasis after 1520 seems to point unmistakably to the western cane fields which, after 1520, surely, were beginning to yield rich returns. Mr. Rogers does, indeed, mention these sources of supply, but he is so impressed with the necessity of a great rise in the price of sugar as the logical consequence of the capture of Egypt that he is unwilling to give them their full due, and dismisses them as follows, with but partial recognition:

"I have, indeed, no proof, but I have no doubt that up to the end of the sixteenth century the sugar industry was steadily growing in Alexandria. It was, indeed, introduced into Madeira in the early part of the fifteenth century, and into the New World shortly after the discovery of Columbus. It became an industry in Brazil and Mexico early in the sixteenth century. Supplies from these regions would no doubt check the reaction on prices which the conquest of Egypt in 1518 effected, and the almost entire annihilation of the industry. But they were not sufficient to arrest the rise, and thus prices tend upwards till it becomes impossible to distinguish the effect induced by the destruction of the Egyptian trade from that which came in the first place by the issue of Henry and Edward's base money, and the final exaltation of general prices. But there is no article in which it seems more easy to trace—few as the entries are—the effect of political events on merchantable commodities."—Rogers, *l. c.*, IV, pp. 675, 676.

⁷ See ante, page 59.

⁸ Peter Martyr, English edition 1577, p. 172, quoted by Moseley, *l. c.*, p. 30. Original edition published in Spain in 1530.

⁹ See ante, page 59.

paniola as follows: "Their swine did multiply exceedingly, but as an enemy to their sugars, a great commodity in Hispaniola, where in 1535 Oviedo reckons almost thirty ingenios, the number daily increasing, they were forced to root out this rooting kind of beast."¹⁰ Southey narrates that in 1519 a royal audience stated to the King of Spain that in Jamaica . . . they had sugar mills, and requested him to settle with the King of Portugal about a supply of negroes for the islands, which if not speedily obtained the islands would be ruined."¹¹ Martin adds that in 1523 there were thirty sugar mills established in Jamaica.¹²

For the continental parts of America there are also similar records. Peter Cieza, who traveled in Peru and other parts of South America during the years 1533-1550, is quoted by Moseley as saying: "In several parts of the vales near the city of St. Michael there are large fields of sugar cane whereof sugar is made in several towns and preserves."¹³ Oviedo declares, also, for the year 1515, that "there is such abundance of sugar in Mexico that certain Spanish ships are yearly freighted therewith and bring the same to Sevilla, in Spain, from whence it is carried to all parts of Christendom."¹⁴

Nor were the islands nearer Europe failing in their sugar supply during this period. The island of St. Thomas, particularly, held a prominent place among the areas of sugar cultivation. It will be remembered that sugar was planted there by the Portuguese in 1472, and according to Ritter rich harvests followed soon after its first planting. Actual accounts for the first years of the sixteenth century are lacking, but the extent to which the sugar industry had been carried in the island at the middle of the century leads one inevitably to the conclusion that in the earlier decades it must have assumed considerable proportions. Ritter records the report of an unnamed Portuguese pilot to the Portuguese Count Rimondo della Torre, to the effect that at the middle

¹⁰ Purchas, "His Pilgrimes," 1625, V Book, VIII, p. 804.

¹¹ Southey, "Chronological History of the West Indies," I, p. 143.

¹² Martin, "History of West Indies," 1836, I, p. 9.

¹³ Moseley, l. c., p. 32, quoted from Cieza, cap., 64, p. 167.

¹⁴ Moseley, l. c., p. 32.

of the sixteenth century St. Thomas had already sixty plantations, with many canals, sugar mills, boiling pans and other necessary utensils.¹⁵ The Madeira and Canary Islands were also in the early sixteenth century still in a most prosperous condition, their period of decline not having yet set in. To the generally flourishing state of sugar culture in the Atlantic Islands at this time Ritter bears full testimony in the following words:

“Als später die Zuckerpflanzungen in den oceanischen westlicheren tropischen Inselgegenden und Gestadewelten mit viel üppigerem Ertrage angesiedelt wurden, musste die Cultur in Sicilien weichen. Bei Syrakus wo sie noch allein ausser der Umgebung von Palermo mit einigem Nachdruck betrieben wurde am Fluss Mirando zwischen Syrakus und Pachino nahm sie schon unter Kaiser Karl V sehr ab.”¹⁶

In Hakluyt there is direct reference to the fact that in 1526 and “for some time previous certain merchants of Bristol did by the ships of St. Lucar in Spain trade to the Canary Islands, sending thither cloth, soap, etc., and return with dyeing drugs, sugar and kid skins,” and that “they also sent thither their factors from Spain.”¹⁷

These several notices referring to the production of sugar in the single plantations make, when combined into one testimony, a great weight of evidence against Mr. Rogers' conclusion. The witness that they bear to the amount of sugar that was then being produced in the Atlantic islands and on the mainland of America, together with the fact, taken from his own tables, that the price of sugar did not after 1518 rise immediately or decidedly over that of the preceding decades;—these two circumstances make it clear beyond a doubt, I believe, that the western plantations were already asserting their supremacy in the sugar world. On no other grounds can one explain the phenomenon of the relatively low price of sugar in the midst of the great rise in the prices of other eastern commodities at the end of the first quarter of the sixteenth century.

¹⁵ Ritter, l. c., p. 398.

¹⁶ Ritter, l. c., p. 404.

¹⁷ Hakluyt's Voyages, II, p. 3, quoted by Anderson, l. c., II, p. 48.

CHAPTER XII.

SUGAR A LUXURY IN ENGLAND.

As already stated in the preceding chapter, there was a quick and decided rise in the price of sugar after the great debasement of the English currency in 1544. Between the years 1543 and 1545 the price is more than doubled, and, as Mr. Rogers declares in a note already quoted, these high prices continue to prevail without interruption for many years.¹

The fact that in 1545, when prices in general in England were enhanced, the price of sugar responded so readily to the general advance, indicates with certainty that its use was becoming established among the English people. In a time of rising prices, from whatever cause the rise may come, those articles which are considered most essential are the first to show the increase. Sugar had not, however, as yet passed beyond the rank of a superfluity, insofar as the great mass of the English people were concerned, and was still regarded as dispensable by most of those who consumed it. That, therefore, at this time of rising prices, which in common with all such periods worked misfortune for many classes of the English people, sugar still continued to be consumed at the higher price, and in increasing quantities,² indicates that there

¹ In 1543 there is the entry of the purchase of 30 pounds of sugar for 18s., *i. e.*, at a little over 7d. the pound, and in 1545—only two years later, but the year after Henry's greatest debasing took place—the average price per dozen pounds was 18s., making the average for 1 pound to 1s. 6d., the actual entries for 1545 being 1s. 8d., and 1s. 4d. the pound. From 1545 to 1552 there is a curious lack of entries. In 1552 sugar is quoted at 1s. 1d. the pound, and the price fluctuated about this point for many years after that date.

² The increase in prices due to an increase in the amount of money in a country is brought about by the fact that an increase in the demand for the commodities results immediately from the increased purchasing power of the consumers. If, therefore, the price of any specific commodity does

must have been a part of the population of considerable economic importance, who in some way still possessed the means to gratify their desire for luxury.

Every increase in price indicates a change in the ratio between demand and supply. To understand thoroughly the exact causes and nature of any such rise as the one in question, the various conditions of consumption and production must be investigated. Only thus can the true nature of the resultant be ascertained. The fact that in the present case the rise in prices was the acknowledged result of the debasement of the currency, indicates clearly that it was in the realm of the demand for sugar as embodied in purchasing power that the prime causes of this especial change were operative. The necessary process in the solution of the problem is, therefore, to examine the various economic classes existent in England at that time, and to find out what was the state of their demand, and what influences were combining to make it what it was. This done, it will be a matter of little difficulty to see how these various classes were affected by the debasement of the currency, and what part they respectively played in giving character to demand under the changed circumstances.

The first point to be borne in mind is that the rise in prices was general, not confined to a few commodities, but affecting all alike. All classes in England, therefore, in so far as they were consumers, were directly affected by the higher prices which they were thus obliged to pay for the satisfaction of their wants. The extent to which the various classes were affected, and the sum total of the

rise under such circumstances it is evident that there has existed a potential demand for the good, beyond the effective demand. If, also, at the same time with the rising price, there is an increase in the *amount* consumed, it is evident that some people are spending a larger relative part of their income than formerly in purchasing the commodity. This is, in fact, what took place in the case of sugar. The price rose quickly and decidedly, and the number of entries in Rogers grows more numerous despite the higher price, indicating that more sugar was steadily being consumed. For the year 1535 there are two entries in Rogers, and one respectively for 1536 and 1543. For 1545 there are two, as also for 1552, and for 1553. For 1554 there are five; for 1557 four, and for 1558 and 1559 seven respectively.

influence which the enhanced prices had upon their well-being, were different for the various economic classes, according as they were predominantly consumers or producers, and according as, if producers, they lived chiefly by agriculture, industry or trade.

In setting forth the results of the debasement of the currency in the sixteenth century, Mr. Rogers has mentioned the manner in which the English people were affected. "In the preamble to Elizabeth's first proclamation on the currency," he says, "the loss of the base money is said to fall principally on pensioners, soldiers and all hired servants and other mean people who live by any kind of wages, and not by rents of land or trade of merchandise."³ Rogers objects to this statement of Elizabeth, and claims that the landowners also suffered from the increase in prices, on account of fixed or customary rent, long leases for land and other things. According to his version, therefore, those engaged in trade were the only members of English society who did not suffer economic loss from Henry's tampering with the currency. This conclusion has been reached purely by a process of elimination, for Mr. Rogers himself does not mention what the effect on the trading classes was. In omitting to do so, it may here be remarked, he has entirely ignored what was the key to the whole situation as to the ultimate influence of the base money in England, both in general and also with especial application to the demand for sugar. Mr. Cunningham declares that its influence upon commerce was "a far more important point than appears in the proclamation,"⁴ inasmuch as a debased currency at home must have disturbed commercial relations with other countries by making it profitable for foreign merchants to come to England to purchase goods with base money, which they themselves brought into the realm, thus enhancing the price of foreign produce in England, since under the circumstances it was imported in much smaller quantities.⁵ In this way the merchants engaged in trade in foreign wares felt the evil effects of the debased currency. It is true, also,

³ Rogers, *l. c.*, IV, pp. 191, 192.

⁴ Cunningham, *l. c.*, II, *Modern Times*, p. 63, n. 2.

⁵ Cunningham, "Growth of English Industry and Commerce," 1885, (*small volume*), pp. 292, 293.

that domestic trade must have fallen off considerably at that time. The wages of labor did not rise relatively with prices, and fixed incomes decreased in real value, so that the general purchasing power of society was lessened, and consumption, accordingly, had to be curtailed.

In the measure here indicated it is evident that the mercantile classes did suffer along with the others from the debased currency. It is also evident, however, that those identified directly or remotely with commercial enterprise suffered much less from this cause than did other economic groups. Those who sold the goods whose prices were enhanced were, obviously, in large part recouped by the extra amounts of money they received from sales, for the high prices which they were obliged to pay for what they themselves bought.⁶

The increased quantities of silver in Europe, by reason of the importations from America, were at that time, also, redounding especially to the profit of the trading classes, and thus serving to counteract in part, at least, whatever bad effects they were suffering from the debased currency. "In mercantile undertakings," says Mr. Warner, "a time of rising prices when the rise is not due to a debased currency, is generally a time of activity and expansion. Profits are high and it is easy to accumulate capital, and encouraging to invest it,"⁷ and again, "Rising prices may be satisfactory to those who embark in commercial undertakings and

⁶ This relative advantage of the mercantile classes is well evidenced in the "Dialogue concerning the common weal of this realm of England" of 1581. (See Shaw's "History of Currency," 1896, p. 125.) The merchant in the pamphlet declares: "We that be merchants pay dearer for everything that cometh over the sea, even by the third part well. . . . When we have thus bought dear outlandish things, then we have not so good vent of them again as we have had before time, by reason there be not so many buyers for lack of power, though indeed in such things as we sell we consider the price we bought them at." The Doctor responds to this: "I doubt not if any men have licked themselves whole (*i. e.*, recovered the loss), you be the same, for what odds soever there happen to be in exchange of things, you that be merchants can espy it anon."

⁷ Townsend Warner, "Landmarks in English Industrial History," 1899, p. 174.

gain the profits; but they press hardly on those whose incomes are fixed or change slowly and with difficulty, and in this class are the wage-earners."⁸ "It is undoubtedly the case," says Mr. Cunningham, "that a rise of nominal prices, and a fall of the value of bullion favors the mercantile classes, and gives a stimulus to industrial activity at the expense of *rentiers* of all kinds."⁹

From this it becomes clear that we should look to the mercantile classes in England at that time for an explanation of the fact that sugar, a luxury inaccessible to the many, continued to be consumed at an advanced price and in increased amounts. If these men, who suffered least in the general economic depression, were numerous enough and wealthy enough to keep up the effective demand for sugar, then the phenomena above referred to are already explained. No proof is needed of the importance of the commercial classes in England at that date. The accumulation of moneyed wealth in the merchants' hands was the characteristic feature of social life in Tudor times, and these men were in consequence becoming the dominant economic force in England. "Merchants and manufacturers," says Professor Andrews, "were becoming more important than landholders and agricultural laborers, and were controlling the policy of the government."¹⁰ These "rich burgesses" were thus occupying the position of the "moneyed classes" of England, and were using the means at their disposal in procuring satisfaction for their various desires. The sensory wants under these circumstances were not neglected, and these "merchants and manufacturers" became, as Mr. Cunningham remarks, the "chief consumers" as well as the chief purveyors of those "foreign goods,"¹¹ among which sugar then occupied so important a place.¹²

⁸ Warner, l. c., p. 175.

⁹ Cunningham, l. c., (small vol.) p. 296.

¹⁰ C. M. Andrews, "History of England," 1903, p. 303.

¹¹ Cunningham, l. c., (small vol.) p. 293.

¹² The extent to which luxury was indulged in in the sixteenth century by these classes in England is well shown in two quotations from Anderson for that year. (Anderson, l. c., II, p. 140.) The first one he took

There was another class of people in England in the early sixteenth century who, though originally not identified with the mercantile interests, were still at this time closely in touch with them, and whose wealth was increasing by reason of the activity of the merchants. These were the landholders, who at that time were universally enclosing their lands and putting them to sheep farming. The advantage of these people was two-fold: first, they shared, as sellers of their wool, in the relative advantage of the strictly trading classes, attendant upon the general rise in prices from the debasement of the currency and the discovery of American silver; and, secondly, they had also an extra return from the high prices that were being offered for wool, independent of the general rise.

This enclosure system was not to escape the all-pervading activity of the commercial classes in England, for very soon after it started, and the great profits it yielded became evident, merchants began to seek here investment for their accumulated capital. The result was that to a large extent the old landed nobility in England gave place to the new régime of capital, and the country-side as well as the towns became subject to its power. Professor Andrews writes of this transformation as follows:

from "a treatise in Sir Robert Cotton's 'Remains,' p. 196, published in 1651, being an essay first written in 1609." "He observes," says Anderson, "that in the year 1573 there was brought in an immeasurable use of luxurious commodities in England, as wines, spices, silk and fine linen; for of the latter sort of above ten groats the ell there is above three hundred and sixty thousand pounds yearly spent, which is half the value of our woollen cloths exported; and maketh the state to buy more than they do sell; whereas a good father of a family ought to be *vendacem*, a seller, not *emacem*, a buyer." The second quotation is from Camden in his "History of Queen Elizabeth." "Under the year 1574," says Anderson, "(he) says the people (by which he meant the rich) wore silks glittering with gold and silver, either embroidered or laced, which it seems the Queen in vain endeavored by her proclamation to restrain, and to oblige people to conform to a prescribed rule. Feasting also was much in fashion at this time; also great improvements were made in buildings, and more noblemen's and gentlemen's country-seats were re-edified, in greater beauty and largeness than had ever before been known. 'And certainly,' says he, 'to the great ornament of the kingdom through to the decay of hospitality.' All which, however, when rightly considered, was no other than the natural effects of our increasing riches and commerce."

"Since the accession of Henry VII the enclosure movement has taken on a new form. While the old manorial system was breaking down and trade was growing, thousands of acres were passing out of the hands of the old nobility into the hands of newer men, merchants and the members of the new nobility, who were getting profit out of them without regard to the condition of the people upon them. The old manorial lords were giving place to a class of landlords who racked the tenantry, evicted those who failed to pay their rents, enlarged their estates by buying up new lands, and enclosed the commons and arable fields without any consideration for those who tilled the soil for a living. In consequence, rents rose, prices trebled and misery increased."¹³

Further than this one need not go in the search for the reasons why the effective demand for sugar, even at its enhanced price, was maintained, and at an increasing ratio, during the latter sixteenth century. The secret of the situation is found in the fact that the owners of purchasing power in England were not so seriously affected by the economic crisis as to be forced to give up their consumption of the good things of life. The merchants and the landholders who were raising sheep, and selling the wool at a greatly enhanced price, had been the chief consumers of sugar before Henry's debasement began, and these men were those who under the changed conditions were still most able to enjoy it, even at its higher price. The rising prices resulting from the base money fell less hardly on these moneyed classes than on the other ranks of society, while the increasing amounts of silver from America, and the consequent effects in England in a general enhancement of prices, worked directly in their favor.

¹³ C. M. Andrews, "History of England," 1903, p. 272.

CHAPTER XIII.

ENGLISH CULTIVATION OF THE CANE.

In the preceding chapter the mercantile element in England, and the allied groups of the population, have been regarded exclusively as consumers in creating through the wealth they owned an effective demand for sugar. This, however, was by no means their most important function in society, for even while they were consuming a part of her finished products, they were acting at the same time as the chief producers of her wealth. In their capacity as consumers they were seeking direct gratification for their organic and sensory wants, but with the accumulation of their capital the prestige wants asserted themselves, and these wants could be assuaged only by productive activity. The merchants, therefore, began to demand investment for their capital, and the era of colonization and plantation in America, under the direction of English merchants and merchant companies, was the inevitable consequence. The interests of these men, moreover, became so powerful in England, that the class as a whole finally gave its name to the English national policy which was formulated and made articulate as the Mercantile System. Moreover, just as these individuals and companies were looking to America for opportunity to invest their wealth, and so to increase their individual prestige, so from the national point of view colonization in the New World offered the opportunity for realizing the main objects of the Mercantile System, and so for advancing national power, which is natural prestige. "Whatever the nature of the 'economic man,'" says Egerton, "prestige will always be dear to nations no less than to individuals."¹ With national and individual interests thus at one, the planting of the American shores was the natural result.

¹ H. E. Egerton, "Short History of British Colonial Policy," 1897, p. 5.

Elizabeth came to the throne with clear realization of the economic condition of her realm. Her eyes were not dimmed to the great importance of her mercantile, wealth-producing classes, nor to the fact that by a wise fostering of these commercial interests she could eventually raise England to a place of equality surely, and to one of predominance probably, among the nations of Europe. To accomplish this all the phases of the mercantile policy had to be carefully guarded, and if this were done the interests of the merchants themselves would be assured. The echoes of the national policy are to be noticed in contemporary documents bearing on the exploring and colonizing movement, and it is worthy of note that in these documents, too, the personal interests of the merchants are not left unexpressed. In discourses on the subject, the profit "to the whole realme in generall" is commonly set forth alongside of the "particular profit of all adventurers."²

In the methods, also, that are set forth, by which these adventurers might grow rich in the New World, sugar planting is early suggested—long, indeed, before any actual attempts at its cultivation were made by the English planters. This was but natural, for in this form of productive activity there was an opportunity to obtain gratification at once for the two demands then so powerful in England, to wit, the desire on the part of the English people for sensory gratification and pleasure, and the desire on the part of the moneyed classes for successful investment, and so for prestige and distinction. These early allusions to sugar testify to the place that it held among English utilities at the end of the sixteenth century. In the directions given "to certaine Gentlemen that went with Mr. Frobisher in his Northwest discoveries" Hakluyt admonishes them as follows:

"And (this seat is to be chosen) for the possessing of mines of golde, of silver, of copper, quicksilver, or of any such precious thing, the wants of those needful things may be supplied from some other place by sea, . . . Or if the soyle shall yield Figges, Almonds, Sugar Canes, Quinces,

² "Hakluyt's Voyages," published 1904 by James MacLehose & Sons, Glasgow, "A discourse of the necessitie and commoditie of planting English Colonies upon the North partes of America," VIII, p. 89.

Oranges, Lemonds, Potatos &c there may arise some trade and traffique by Figs, Almonds, Sugar, Marmelade, Sucket, &c."³

In his "Discourse on Western Planting" Hakluyt also adds as a remedy for England's surplus population, that they be sent "for certen yerres in the westerne parts, especially in Newfoundland, . . . and in the more southerne partes in setting them to work in mynes of golde silver copper leade and yron, in dragging for perles and currall, in plantinge of sugar canes as the Portugales have done in Madera."⁴

The colonial energy of Great Britain in the Western Hemisphere was in its first ventures directed exclusively toward the more northerly parts of North America. Sporadic expeditions did touch at the West India Islands, but they did not in the earlier years result in any permanent occupancy. The first attempts at colonizing the English West Indies belong to the first quarter of the seventeenth century. The first land in these islands that was claimed for the English crown was on the island of Barbados, and it is significant that it was here, also, that the first sugar cane was planted by English settlers.

Barbados was discovered first by the Spaniards, who, as did also the Portuguese, visited the island in the early sixteenth century. The first English vessel touched there in 1605, and its master and crew took possession of the country by erecting a cross upon the spot where a city later was built. In the bark of a tree which stood near they cut the words "James K of E and this island." No settlement was effected on Barbados until 1625, when Courteen, a Dutch merchant with interests in England, fitted out a colonizing expedition thither under the patronage of the Earl of Marlborough, to whom the King granted the island. The claim to Barbados was in the succeeding years the subject of much dispute and many rivalries, for the English kings granted it away to one petitioner after another, with no regard to previous patents or charters. The result is an almost hopelessly complex set of documents on the subject.

³ "Hakluyt's Voyages," edited by Edmund Goldsind, 1889, I, pp. 109 sq.

⁴ "Hakluyt's Voyages," edited by Edmund Goldsind, 1889, II, p. 194.

Meanwhile the planting of Barbados went steadily on. The earliest settlers put themselves to raising cotton and tobacco. Their success in this was not great, however, and the early years of Barbados bore but little promise of its future greatness, "of all," to quote Charles Kingsley, "the wealth and commerce and beauty and science which has in later centuries made that lovely isle the gem of all the tropic seas."⁵ "The tobacco," says Ligon, "was worthless and earthy, and they lingered on in a lamentable condition."⁶ "But when," he goes on to say, "their sugar canes had been planted three or four years, they found that to be the principal plant to improve the value of the whole island, and so bent all their endeavors to advance their knowledge in planting and making sugar, which knowledge, though they studied hard, was long a-learning."⁷

According to Ligon, sugar was introduced into Barbados from Brazil in about 1641. The methods of cultivating and boiling it were learned also from Dutch planters in that country, and although, as he says, this knowledge came but slowly, still in 1650 the island was on a fair way to prosperity. From that time on for many years the English continued to gather to themselves the monopoly of the sugar plantations, as they had already acquired that of the refining industry. This process had advanced at such strides by the end of the century that Sir Dalby Thomas was led to declare in unfeigned admiration:

"Invention in Barbados has proceeded so fast and so far for planting, pressing, boiling, separating and cleansing cane, as well as for drawing excellent spirits from molasses, . . . that now the English exceed all nations of the World in regard to Cane. The Pleasure, Glory and Grandeur of England has been advanced more by sugar than by any other commodity, wool not excepted."⁸

⁵ N. Darnell Davis, "Cavaliers and Roundheads of Barbadoes," 1887, p. 39. Quoted from "Westward Ho," Chapter XVII, Charles Kingsley.

⁶ Ligon, "A True and Exact History of the Island of Barbados," 1673, p. 24.

⁷ Ligon, l. c., p. 24.

⁸ Sir Dalby Thomas, "Historical Account of the Rise and Growth of the West India Colonies and of the Great Advantages They are to England in Respect to Trade," London, 1690, printed in the Harleian Miscellany, London, 1808-1813, II, p. 365.



CHAPTER XIV.

THE ENGLISH SUGAR TRADE.

England's next care, after her sugar plantations in the West Indies were assured, was to secure for herself the monopoly of the carrying trade in sugar. During the days of the Spanish and Portuguese supremacy in the sugar world Portuguese vessels had, as already shown, managed the transportation of sugar from the various plantations chiefly to Lisbon, and Dutch ships had performed the service of distributing it thence to the various ports of Europe. The Dutch early extended their commercial activity to the western world, their possession of Brazil from 1624 to 1654 giving them strong foothold in the sugar regions there. When the English started their plantations in the tropics, therefore, the Dutch immediately included them among their clientèle, and for many years Dutch vessels furnished by far the most of the communication among the colonies, and between America and Europe. "From their busy trading center at Curaçao," says Woodward, "(they) conducted nearly the whole of the inter-colonial trade of America, and supplied both English and French settlements with European produce. The sugar trade between America and Europe was almost entirely in their hands."¹

The Dutch carriers offered the English sugar planters much more favorable terms than did the vessels of their own country, and it was, therefore, against these odds that England was forced to struggle in her attempts to win this trade for herself. "The colonists," says Darnell Davis, referring to this period, "now prospered mightily, the Dutch giving them credit almost *ad libitum* and supplying them with negroes, for whom payment was not required until these laborers had planted canes for a crop, and that crop had been reaped and converted into sugar.

¹ Woodward, "The Expansion of the British Empire," 1902, p. 115.

When the Civil War broke out in England, the Dutch managed nearly the whole trade of the English West India colonies, and thus they furnished the Barbadian planters not only with negroes, but also with coppers, stills, and every other appliance needed by the ingenios, and also with the ordinary requisites of life."² ³

The rigorous policy of the English Navigation Acts was adopted in large measure in order to drive the Dutch from this inter-colonial commerce, and from their European coasting trade in so far as England was concerned. In the Navigation Act of 1660 sugar holds the first place among the so-called "enumerated articles" which were thenceforth to be exported only to England, Ireland or to some other of His Majesty's plantations, and only in English, Irish or plantation-built ships, "owned by Englishmen, and whereof the Master and three-fourths of the Marriners at least are English." This act had in great measure the desired effect in driving out the Dutch from the inter-colonial trade, and England was soon enabled to assert her mastery. The enormous increase in sugar production on the English islands after the middle of the seventeenth century threw always more and more of the sugar trade into the hands of whoever might have the monopoly between the West Indies and England. The fact, therefore, that the Navigation Acts were bringing that trade to the English, gave these people an ever expanding advantage, and in the course of a few years the balance had swung decidedly to their favor. Long before the dawning of the eighteenth century

² Darnell Davis, l. c., pp. 70, 71.

³ In a letter written on October 19, 1651, from Sir George Ayscue, sent to subdue Barbados, to Lord President Bradshaw, there is the following statement: "Made the Island of Barbados over night, and the next morning surprised in the bay 15 sail, most of them Dutch." From this an idea may be gained of the great part played by the Dutch in Barbados trade. (Calendar of State Papers, Colonial, 1574-1660, p. 362.) And in a report from Governor Dan Searle (*Ibid.*, p. 390) to the Council of State there is the following statement pointing to the Dutch activity: "Sends by the Endeavour, one of the prize ships, Capt. Robt. Story, commander, an account of the prize goods. Their trade was most of all carried on by the Dutch, but since the late Act of Navigation there has been some scarcity and want of commodities."

the English succeeded in winning for themselves the monopoly in the production of sugar values in exchange just as she already possessed them in the cultivation of the cane and the refining of its product, so that thenceforth for many years, England was rightly the center of the sugar industry of the world.

At the close of the period with which I am here dealing, the English star was still in the ascendant, although its light was beginning to be threatened by that of another luminary, in whom before many years the chief brightness of the sugar world was to center. For the present work, however, interest centers in the English at home and abroad. Within the time limits it includes the last great step in the production of sugar values was taken.

With production thus centering in England it was but natural that the most characteristic phenomena of consumption for this period should also occur there. The English industry in the West India Islands was producing great quantities of cane and grinding it to make muscovadoes, which muscovadoes English vessels were transporting to England, where English capital was refining them into the finished product. In this way there was furnished to the English consumer a supply always increasing, and a chance was offered him to expand his consumption. Along with this increased supply there was a demand that was always expanding, not only in natural ratio with the growth of population and of wealth, but in an accelerated rate, because of additional circumstances. From the supply side, also, subsidiary causes were at work in determining more exactly the actual amount of sugar that was put on the English market. It is to the tracing of this process of the expanding consumption of sugar among the English people that the remaining part of this work is to be devoted.

The various stages of the process were marked by the reciprocal action of changing conditions of supply and demand, and each stage was characterized by the specific circumstances of the moment. Amid all fluctuations, however, one general tendency was evident, and one single direction of events asserted itself.

The price of sugar was falling, and its consumption was spreading rapidly among the English people. By the end of the period sugar had passed well out from among the luxuries and was regarded by increasingly greater numbers as necessary to comfort and happiness.

CHAPTER XV.

THE DEMAND FOR ENGLISH SUGAR.

In large, it may be said that the price of sugar declined constantly throughout the seventeenth century. Fluctuations appear at times, but the general tendency is undoubtedly in a downward direction.¹ The conclusion that must be drawn from this is obvious, namely, that during the century the consumption of sugar was spreading steadily among the English people. As its price continued to fall, those who up to that time had been obliged to rank it among their luxuries for feast days and the like, were enabled to enjoy it on common days at the regular family board, while many who perhaps had never been able to expend money for such a superfluity could now raise it to a place among their utilities. "C'est au dix—septième siècle," says Figuier, "grace aux

¹ A list of prices taken from Rogers, as nearly as possible a decade apart, show figures gradually diminishing, as follows:

For 1600, the cheapest quotation is 1s. 6d. per pound for sugar, 2s. being the price of "fine" sugar for that year.

In 1610, the prices for "sugar" range from 1s. 10d. per pound to 1s. 2d. per pound.

In 1620, the highest price quoted is 1s. 6d. for "refined sugar," while the prices of "sugar" unqualified range anywhere from 1s. 2½d. to 1s. per pound—in one case only 11d. being paid for the so-called "kitchen sugar."

For 1630, Mr. Rogers quotes no prices, but in 1631 1s. 8d. is the regular price for "fine" sugar, and 1s. 4d. or 1s. 3d. for "ordinary" sugar.

In 1641, the price of "sugar" is about 1s. 2d. or 1s. 1d. per pound; while—1650 shows three entries at 1s. 6d., 1s. 5d. and 1s. 6d., respectively.

For 1661, the prices are 10d. and 9d. per pound, and for 1675, 9½d. and 10¾d. for sugar-loaf by the pound.

In 1685, sugar is selling at 8d. and 7d. per pound, and in 1690 at 6d., 7d. and 8d. per pound.

In 1699, "fine" sugar is quoted at 7d., and "sugar" at 6d. per pound, while 1700 shows "double-refined" loaf sugar at 1s. 2d. per pound, and "fine powder" sugar as low as 9d.—Rogers, l. c., Vol. VI.

envois d'Amérique que le sucre entra dans les habitudes de la vie domestique, et devint chez tous les peuples de l'Europe une substance de première nécessité.²

Mr. Rogers testifies also to the increasing consumption of sugar in his remarks upon the greater quantities, as compared with the earlier era in which it was bought at the end of the seventeenth century. "The growing cheapness of sugar," he says, "is further illustrated by the quantities, now much larger, by which it is bought. In the earlier times rich people bought it by the pound, or at most by the loaf, a loaf of sugar being a favorite present to a distinguished personage. Even such an opulent person as Lord Spencer buys stocks of sugar by the loaf, though on two occasions, 1613, 1614, the weight of twenty loaves bought is given. In 1664 it is first bought (and without the designation of loaves), by the hundredweight at eighty-four shillings. It is again purchased in the same manner in 1679."³ "There is no doubt," he declares, "that as the supply of sugar was increased the demand for the produce was increased also. Tea and chocolate and coffee became in the last forty years of the century common and favorite beverages, and the use of sugar to sweeten them was as general as the consumption was."⁴

The influence of the use of chocolate upon that of sugar has already been dealt with at length.⁵ Although cocoa was introduced into Spain and the southern countries soon after the discovery of America, its use does not seem to have reached England until the middle of the seventeenth century. In the decade between 1650 and 1660 the consumption of chocolate spread extensively in England, as is proven by the record of its importation into English ports and of the widespread cultivation of the cacao tree in the English West India Islands. As early as 1658 there is the account of a receipt of Captain John Wentworth for "seven puncheons of cocoa laden on board the states' ship Paul of William Dalyson, to be delivered to Robert Blackborne, Secre-

² Figuier, l. c., II, p. 13.

³ Rogers, l. c., V, p. 463.

⁴ Rogers, l. c., V, p. 462.

⁵ See ante, pp. 56 sq.

tary to the Commissioners of the Admiralty at Whitehall or his assigns."⁶

In the same year it is recorded that the inhabitants of Jamaica were busily engaged in clearing cocoa walks.⁷ Cacao was indeed at that time the chief commodity of that island, and for several years to come the main source of her wealth.⁸ Its economic importance as a commodity may be seen in the fact that it was then commonly employed in that island as a measure of values, and, in so far as actual fines were sometimes payed in cacao, as a medium of exchange.⁹

In 1668 Sir James Modyford declared cacao to be the "best commodity of the island (Jamaica)," adding that "neither sugar nor indigo will turn to account nearly so well."¹⁰ In 1670 there

⁶ Calendar of State Papers, Colonial, 1574-1674, Addenda; 1675-1676, p. 122.

⁷ Calendar of State Papers, Colonial, 1574-1674, Addenda; 1675-1676, p. 125.

⁸ The Calendar of State Papers furnishes three separate entries of exportation of cacao from Jamaica to England in the year 1660. The first (Calendar of State Papers, Colonial, 1574-1674, Addenda; 1675-1676, p. 132) is of 5,000 pounds; the second (*Ibid.*, p. 134), of 12,400 pounds, "which," adds the account, "will yield far greater sum than he is engaged for," and the third (*Ibid.*, p. 135), of 4,000 pounds.

⁹ In an order of the Government and Council of Jamaica of June 18, 1661, we read that "sugar shall pass at 25 shillings per cwt., and cocoa at 4 pence the pound." (Calendar of State Papers, Colonial, 1661-1668, p. 37.) Another entry for October 10, 1662, mentions this same custom. It is the account of a proclamation of Governor Lord Windsor to the effect "that on account of the scarcity of money and in accordance with the practice of Barbadoes and other plantations, sugar shall pass current at 3 pence per pound, and cocoa at 4 pence per pound." (*Ibid.*, p. 111.) That cocoa was thus adopted as a measure of the value of other commodities, and in many cases as the actual form in which paymentss were made, indicates much for its general desirability at that time, not only among the inhabitants of Jamaica itself, but among the people of the mother country as well. In April, 1666, "Don Juan Ximenes de Bahorgues desired Sir Thomas Modyford to send to London what belonged to himself in pieces of eight bills or in cocoa and sugar assigned to Giles Lydcotte," indicating obviously that for the cocoa thus consigned there would be sure and ready sale. (*Ibid.*, p. 374.)

¹⁰ Calendar of State Papers, Colonial, 1661-1668, p. 551.

were in Jamaica "forty-seven cocoa walks, yielding one hundred and eighty-eight thousand pounds of nuts, in seasonable years in these improving,"¹¹ while in a "Summary Prospect (written in the same year) of the advantages and conveniences capable to arise to His Majesty from the planting of Jamaica)" we read:

"As to the commodities, as no island abounds in cacao more than Jamaica, it is easy, with good management, to beat out the Spaniard, which commodity is not only exceedingly valued (as it is ready money in Spain, France, Flanders, Holland and England) but is greatly growing in request, and the profit is such that if it keeps up but the moiety of its price it will be of far more gain to the planter than indigo, ginger, cotton or sugar. Wherefore if sugar has raised our plantations to far greater value than most plantations in the world, what may we expect cacao may do if once strenuously followed; and if Barbadoes have risen to be so rich by sugar alone where land is dear, and cattle, provisions and wood scarce, what may Jamaica arrive to where all these are in plenty?"¹²

The various references here quoted speak for themselves with regard to the growing popularity of cocoa in England in the latter half of the seventeenth century.

Cocoa was not, however, despite this popularity, to become England's "national beverage." This place was reserved for the eastern concoctions coffee and tea. "Coffee and tea," Payne tells us, "were more easily prepared, required no admixture of other ingredients and proved better suited than chocolate to the taste of the people of Northern Europe."¹³ Certain it is that in a few decades the consumption of cocoa in England was far outstripped by that of coffee and tea, both of which were introduced into England almost at the same time as was cocoa.

Coffee was first taken to England in about the year 1650, the first public coffee-house being opened in London in 1652 by a Greek, the servant of an English turkey merchant, one Mr. D. Edwards. Its use in England spread from that time on, and the coffee houses established in various parts of London became the meeting places for people of all social classes and political parties and religious sects. Since in the consumption of coffee sugar

¹¹ Calendar of State Papers, Colonial, 1669-1674, p. 104.

¹² Calendar of State Papers, Colonial, 1669-1674, p. 151.

¹³ Payne, l. c., I, p. 425.

played so essential a part, any idea of the place occupied by coffee in the England of the seventeenth century will throw much light on the importance that was then attached to sugar. To ascertain just what rôle coffee played in the life and manners of the English people at that time one cannot do better than turn to the pages of Macaulay:

"The coffee-houses," he says, "must not be dismissed with a cursory mention. . . . The first of these establishments had been set up in the time of the Commonwealth by a Turkey merchant who had acquired among the Mohammedans a taste for their favourite beverage. The convenience of being able to make appointments in any part of the town and of being able to pass evenings socially at a very small charge was so great that the fashion spread fast. Every man of the upper or middle class went daily to his coffee-house to learn the news and to discuss it. Every coffee-house had one or more orators to whose eloquence the crowd listened with admiration, and who soon became what the journalists of our time have well called a fourth Estate of the Realm. . . . Nobody was excluded from these places who laid down his penny at the bar. Yet every rank and profession and every shade of religious and political opinion had its own headquarters. . . . There were coffee-houses where the first medical men might be consulted. Dr. John Radcliffe, who in the year 1685 rose to the largest practice in London, came daily at the hour when the exchange was full from his house in Bow Street, then a fashionable part of the Capital, to Garraway's, and was to be found surrounded by surgeons and apothecaries at a particular table. There were Puritan coffee-houses where no oath was heard, and where lank-haired men discussed election and reprobation through their noses—Jew coffee-houses, where dark-eyed money changers from Venice and from Amsterdam greeted each other, and Popish coffee-houses, where, as good Protestants believed, Jesuits planned over their cups another great fire, and cast silver bullets to shoot the King."¹⁴

This great popularity of the coffee-houses in London was due as much, perhaps, to the taste and desire for coffee as to the general political and social conditions of the age. In that age, Macaulay tells us, "no Parliament had sat for years. The municipal council of the city had ceased to speak the sense of the citizens. Public meetings, harangues, resolutions and the rest of the modern machinery of agitation had not yet come into fashion.

¹⁴ Macaulay, "History of England," Harper & Bros., New York, 1879, I, pp. 339 sq.

Nothing resembling the modern newspaper existed. In such circumstances the coffee-houses were the chief organs through which the public opinion of the metropolis vented itself."¹⁵

Combined with these circumstances, however, the nature of coffee must still have been an important determining element in making it the beverage that should give those meeting places not only their character but also their name. Coffee was, in short, a drink to which no one could object on moral or on other grounds. Its qualities, furthermore, as a stimulant rendered it attractive and generally desirable and desired at a high and slowly declining degree of utility. These various circumstances of supply and demand had as their natural consequence a greatly extended consumption of coffee, and attendant upon it a great increase in the use of sugar.¹⁶

Tea can scarcely be said to have entered into popular use in England in the seventeenth century, for in 1700 the price per pound was still tremendously high. Its use was introduced into England almost simultaneously with that of coffee, but its value remained apparently much higher than that of the latter commodity, and it was for succeeding centuries to witness the final triumph of tea as the national beverage of England.¹⁷

"Tea," says Phillips, "appears to have been first used in Eng-

¹⁵ Macaulay, l. c., p. 339.

¹⁶ Coffee, unlike cacao, was not in the seventeenth century an English colonial product. "Till 1690," we are told in the *Encyclopædia Britannica* (Vol. VI, p. 111), "the only source of the coffee supply was Arabia; but then Governor-General van Hoorne, of the Dutch East Indies, received a few coffee seeds by traders plying from the Arabian Gulf and Java, and one of the first plants thus grown in Java was sent to Holland and planted in the Botanical Gardens in Amsterdam. The plants grew and flourished also in Java. Cultivation was established in Surinam in 1718 and ten years later, in 1728, the plant was introduced in the West India Islands, and gradually the culture extended throughout the New World."

¹⁷ High prices prevailed until the dawning of the eighteenth century—according to Phillips ("History of Cultivated Vegetables," 1822, Vol. II, p. 294), until 1715, when "green tea began to be used, and as it was imported in greater quantities the price was lessened." All the records of the price of tea before that date show prohibitive figures.

land during the Commonwealth, for on the restoration of Charles II, in 1660, Parliament in that year laid a duty of eight pence on every gallon of the infusion of tea that was sold at the coffee-houses. This duty could not have been very productive to the government, as the price of common tea was then sixty shillings per pound in London.¹⁸ . . . 'An exact description of the growth, quality and virtues of the leaf tea,' declares that in 1659 and 1660 tea was very scarce and dear, and in respect of its scarceness and dearness it hath been used only as a regalia in high treatments and entertainments and presents made thereof to princes and grandees."^{19 20}

A contemporary mention of the three "dietetic beverages"—chocolate, coffee and tea—in the seventeenth century is quoted by Phillips and is of great interest as showing the place that they held in the esteem of the people of that age. It is from the pen of Father Athanasius Kircher, who wrote after 1655. From his words it is evident that these three commodities—chocolate, coffee and tea—were all in more or less general use when he wrote. He says, in part:

"There is a plant called cha, which not being able to contain itself within the bounds of China hath insinuated itself into Europe. . . . For its physical properties of exhilaration . . . though the Turkish coffee administer the like cordiality and the Mexican chocolate be another excellent drink, yet tea, if the best, very much excelleth them both, because that chocolate in hot seasons inflameth more than ordinary and coffee agitateth choler, but tea in all seasons hath one and the same effect."^{21 22}

¹⁸ Phillips, l. c., II, p. 290.

¹⁹ Encyclopædia Britannica, XXIII, p. 108 b.

²⁰ "In 1666," says Phillips (l. c., II, p. 291), "tea appears to have been used by families of distinction, as we are told that in that year it was imported from Holland by the Lords Arlington and Ossory, who brought it into the fashion among people of quality. He suggests also that inasmuch as this was the year after the great plague of London . . . it may have been considered an antidote against that disorder—If this opinion," he concludes, "was entertained, we need not be surprised at the rapidity with which tea came into use."

²¹ Phillips, l. c., II, p. 287.

²² Tea has been here taken into account more for its potential and pros-

The inevitable effect of the growing use of tea and coffee upon the demand for sugar has been generally recognized by students of its history. "The quantity of raw sugar consumed in England," says Reed, "was inconsiderable until tea and coffee came into use, both of them being introduced toward the end of the seventeenth century. Its use commenced from this period to be general."²³

In addition to the increasing consumption of sugar within the confines of England during the seventeenth century, there was beyond her borders also, an extensive demand for English sugars. A petition of grievances to the King from Barbados, dated April 16, 1675, states that "the half of the sugars that are brought into England are not consumed in your Majesty's dominions."²⁴ In 1691 (-2), moreover, in a statement of the case of the sugar refiners, it is declared that the "trade of refining sugars" in England had "extended itself to the supply of many foreign parts, and particularly the greatest part of the East Country, which is a very profitable trade to this kingdom."²⁵ In this same paper, however, the loss of the English foreign sugar trade is deplored, and is attributed to the relative advantages that the other European nations, especially the French and the Dutch, possessed in this respect over the English.

The influence of France was exerted indirectly upon the English sugar market through the foreign market. France won from England the foreign demand for her sugars, and so put at the

pective effect on the consumption of sugar than for any appreciable influence—then at best only incipient—which it actually exerted in the seventeenth century. In later years, when the price of tea had become much less, and that beverage began to be used in England in somewhat the same proportions as now characterize its consumption, the reaction on the consumption of sugar was a most important element in determining the demand for the last-named article. It has, therefore, seemed well to stop a moment over the very first introduction of tea into England, as preparatory to an understanding of the influence which it later wielded.

²³ Reed, l. c., p. 188.

²⁴ Colonial Entry Book, Vol. 13, pp. 179, 180.

²⁵ A report of the Commissioners of Customs to the Lords Commissioners of the Treasury on the case of the Sugar Refiners, January 13, 1691 (-2); Treasury Board Papers, Vol. XVII, No. 14.

disposal of the English consumers much greater quantities of that commodity than would otherwise have remained in England. The power of the French in the West Indies asserted itself early in the seventeenth century, and French statesmen soon realized the possibility of acquiring great riches in those regions. "Cardinal Richelieu," says Anderson in an entry for 1638, "seems to have understood very early the importance of which the French West India Isles would prove even before they had any sugar canes planted in them, and having the glory and interest of France very much at heart, he labored to give his sovereign Louis XIII favorable impressions of them, although they produced nothing yet but cotton, ginger and bad tobacco. Wherefore he at this time got his King to appoint the Governor of those isles to be his own Lieutenant General there. By such means the French isles soon became much improved, more particularly Martinico and their moiety of St. Christopher."²⁶

French sugars began to assert their supremacy over the English toward the latter part of the century. A complaint of the year 1668 declares that "the French have greatly increased by setting a great imposition on foreign sugars, and a low one on their own, so the English cannot buy necessities half as cheap as their neighbors, nor make sugar on nigh such easy terms, and go and live among the French, who give them all sorts of encouragement. English commodities, production, inhabitants and navigation are thus much decreased and their neighbors much augmented, and if some remedy be not suddenly applied the English islands, inhabited only by masters of great plantations and their blacks, will either be cut off by their own negroes or become a prey to any assailant."²⁷ So far had the matter gone by 1690 that Sir Dalby Thomas declared in that year:

²⁶ Anderson, l. c., II, p. 380.

²⁷ Calendar of State Papers, Colonial, 1661-1668, p. 542.

"The French," I find elsewhere, (Calendar of State Papers, Colonial, 1669-1674, p. 98) "are seated (in 1670) upon part of St. Christopher's and have much increased the number of their people and their forces, trade and plantations there and in the neighbouring islands." For the year 1676 the following entry occurs: (*Ibid.*, 1574-1674, Addenda; 1675-1676, p. 421)

"Should the art of making sugar be so discouraged as to take its next flight to the Dutch or French, as it did from Portugal to us, the loss would prove of the like consequence which is no less than the decay of the greatest part of their shipping and the fall of half their revenue—they being forced to abate the 10 per cent. duty lately to get some to be exported, and that with little or no success."²⁸

Butel-Dumont has drawn an adequate summary of the French activity with regard to sugar, and I shall quote it as a conclusion to the question. He says that in early days the French West India Islands were left relatively undeveloped, because the French colonists had not enough capital to grow the sugar cane. Finally, however, the French Government resolved to encourage sugar cultivation, and began accordingly to multiply plantations. In this state, the French were ready to seize any opportunity that should be offered of making themselves masters in the field. The chance came finally when James II laid his additional heavy burdens upon sugar, and when the French islands could, therefore, supply France with sugar as cheaply as England could. "Depuis ce temps," he concludes, "le commerce de sucre que faisoient les Anglois avec les étrangers sortit par degrés de leurs mains et passa entièrement dans celle des François."²⁹

In the midst of this danger from the French the Dutch were still persistently pushing their attempts to maintain the carrying trade in sugar. Despite the Navigation Acts they were unwilling to give up the struggle for commercial supremacy. It is recorded that in 1671 some millions of sugar were carried from Nevis into Holland."³⁰ In 1690 Sir Dalby Thomas assures us that "great quantities of commodities are sent out of the Leeward Caribby Islands and sold to the Dutch at low prices for private lucre—for those people saving all the duty as well as four and one-half per

"The French are possessed of Martinique, Guadaloupe, St. Christopher's (in great part), Marigolante, Cayenne. . . . Their strength is very considerable as shown by their resistance to the attack by the Dutch in 1675."

²⁸ Sir Dalby Thomas, Harleian Miscellany, l. c., II, p. 367.

²⁹ Butel-Dumont, l. c., p. 217.

³⁰ Calendar of State Papers, Colonial, 1669-1674, p. 339.

cent. there as the customs in England, and having goods in barter for them directly from Holland, can afford their sugar much cheaper than their neighbors, so that there go out of that back door for Holland under the name of 'St. Eustace Sugar' above fifteen hundred hogsheads of muscovado sugar, which refined with great advantage to that nation in Holland keeps markets low in all foreign parts."³¹ ³² By this means, obviously, the Dutch carried from the English colonies sugar that would otherwise have been taken to England to be refined. By transporting this same sugar to various parts of Europe, and selling it cheaper than the English sugar refiners could sell theirs, these Dutch traders added their influence to that of the French in the losing of the foreign sugar market to England.

These, then, were the conditions of demand which the English-sugar market was called upon to meet, namely, a foreign market for her produce, greatly diminished by the successful competition of the French and the Dutch; and a demand at home greatly increased by reason especially of the consumption of chocolate and coffee and tea.

³¹ Sir Dalby Thomas, *Harleian Miscellany*, l. c., II, p. 382.

³² In 1685 (*Calendar of State Papers, Colonial*, 1681-1685, p. 84), the Lieutenant-Governor Molesworth, of Jamaica, wrote to Wm. Blathwayt: "I must not omit to tell you of the vast discouragement that will be thrown on planting by the additional duty on sugar. . . . Those that persuade the King that the duty will fall only on the expender argue well, supposing that no other nation made sugar but ourselves. But when we consider that the French, Dutch, and Portuguese are all our competitors and that the chief vent for our own is in foreign markets (which by this additional duty will be lost to us), all their reasoning is invalid and tends only to the destruction of the plantations. The short of it is that Virginia receives a mortal stab, Barbadoes and the Islands fall into a hectic fever, and Jamaica into a consumption."

CHAPTER XVI.

THE SUPPLY OF SUGAR IN ENGLAND.

The cultivation of sugar once introduced into the English West Indies spread rapidly. Although the cane was not planted in Barbados until 1641, and although her greatest prosperity did not begin until after 1647, yet in 1655 one thousand four hundred and nineteen pounds and four shillings, sterling, were received at the port of London as customs on white sugars from that island, and ten thousand pounds and ten shillings were received on brown sugar from the same place.¹ The amounts of sugar sent from Barbados to England between the years 1697 and 1700, as given in a later manuscript, reveal an enormous productivity for that island at the close of the seventeenth century.² Jamaica under Spanish rule did not produce great quantities of sugar. Under the English her fertility was first turned to account in the production of cacao. In 1660 the sugar cane was planted on the island, and although for some years after that cacao was her chief product, still the amounts of sugar produced were not inconsiderable, and increased

¹ Calendar of State Papers, Colonial, 1574-1660, p. 434.

² The figures referred to are taken from the Rawlinson Manuscript (B-250, Folio 64) in the Bodleian Library. No signature is attached, and there is no mention of authority; but I shall quote them here as in large measure indicative of actual conditions at that time. They are as follows:

Of Muscovado sugars there were sent from Barbados to England:

Hogsheads	63,666
Tierces	4,450
Barrels	14,693
Pounds	8,800
Small Casks	163

and of white sugar:

Hogsheads	2,148
Tierces	372
Barrels	1,267

rapidly. In the year 1670 she was producing seventeen hundred and ten thousand weight of sugar annually,³ while at the close of the century this production had been greatly augmented.⁴

The area of sugar cultivation by the English in the West India Islands expanded constantly. Its growth was, however, not without many vicissitudes. The international relationships in Europe during the seventeenth century were more or less faithfully reflected in West Indian conditions, and the last fifty years of the era were marked in those islands by a constant shifting of possession. It is, therefore, most difficult to obtain any clear idea of the exact range of the English sources of supply of sugar. The best that one can do is to attempt to stay the kaleidoscope at a point when its picture seems most representative. This has in a measure been done for us in an account of the bounds of English and French influence in the West Indies in 1666. "In the year 1666," we read, "the English were possessed of Barbadoes, the better half of St. Christopher's, Nevis, Montserrat, Antigua and Suranam; those Plantations did then employ above fflower hundred saile of English shippes annually and in them above ten thousand English seamen and did also furnish a native commodity of above eight hundred thousand Pounds Value per annum to this Nation besides a considerable revenue to the crown."⁵ In addition to the islands here enumerated, Jamaica must, of course, be included among the English sugar plantations at that time.

³ Calendar of State Papers, Colonial, 1669-1674, p. 104.

⁴ Manuscript Rawlinson, Bodleian Library, B-250, Folio 59. According to this manuscript there were sent from Jamaica to England in the years from 1680 until 1684, 31,647 hogsheads of sugar and 57 barrels of molasses. In the years from 1686 until 1691 (Folio 60) there were sent from Jamaica to England 57,102 hogsheads of sugar and 1,073 barrels of the same, while (Folio 61) in the years 1698-1700 the amounts sent from Jamaica to England were 19,412 hogsheads, and 719 barrels of sugar.

⁵ Colonial Entry Book, Vol. 13, p. 56. Papers appended to a letter of the Gentlemen—Planters of London to the Council and Assembly of Barbadoes concerning their efforts against a proposed duty on English sugar, which papers contain the various appeals handed in to Parliament. The quotation is taken from the "State of the Case of the Sugar Planters in America."

This increasing productivity of the sugar islands in the seventeenth century meant, of course, a great increase in the supply of sugar on the English market. Not all, however, of the yield of the English West India plantations found its way to the mother country. There was at that time a great demand outside of England for sugar and the by-products of sugar—molasses and rum. The chief area of this demand was the continent colonies of North America. Trade relations between the North American colonies and the West India Islands were very early established. The West Indies served for the continental settlements, both as a vent for their native products, and as a base of supply for various articles that they needed. To the islands, on the other hand, trade with the mainland colonies was essential as the means by which they might procure such commodities as "boards, timber, pipe-staves, horses and fish, without which they could not maintain their buildings nor send home their sugars."⁶

Great quantities of sugar were transported from the West India Islands to the continent colonies. In the year 1677-1678 Jamaica, St. Christopher's, Nevis and Barbados sent large imports to New England, New York, Virginia and the Carolinas, and this year was a representative one for that time.⁷ All of this sugar, however, was not consumed in the North American colonies. The

⁶ Calendar of State Papers, Colonial, 1669-1674, p. 475.

⁷ Colonial Papers, Vol. 43, No. 180; West Indies—An account of goods entred in his Maties Custome Houses in the American Plantations as exported from one Plantation to another in the respective Tymes hereafter menconed: Vizt—Extracted out of such Accts. as are Remaining in ye custody of ye Comptroller General (Giles Lytcott) of the Accts. of his Maties Customes at Xmas, 1679.

Mchās 1677—Mchās 1678.

From Jamaica to

Virginia	33,100 lbs. sugar
Bay of Campeachy	19,600 lbs. sugar
New England	
New York	
Carolina	1,200 lbs. sugar
Caracoa	

Total 53,900 lbs. sugar

development of inter-colonial trade had been such that the continental colonies regularly exported their products to the West Indies, and received in return West Indian sugar, tobacco, etc., which they in turn sent on to Europe. In so far as the Navigation Act was obeyed, this sugar was sold ultimately on the English market, so that the round-about trade through the mainland colonies did not necessarily act as a great check upon the supply in England. It was, therefore, by the amount actually consumed in the colonies that the English supply of sugar was chiefly lessened, compared with the amount produced in the English colonies.⁸ That great quantities of sugar did find their way to England through the continental colonies is evident from the many records extant of ships laden with sugar which arrived in English ports from points on the American mainland. An account

From Nevis to

Virginia	3,136 lbs. sugar
New England	130,266 lbs. sugar
Barbados	
St. Xophers	3,136 lbs. sugar
Bermudas	3,920 lbs. sugar

Total 140,458 lbs. sugar

From Xophers to

New England	152,541 lbs. sugar
Virginia	22,230 lbs. sugar
Bermudas	6,852 lbs. sugar
Nevis	896 lbs. sugar
Montserrat	

Total 182,519 lbs. sugar

From Barbados to

Bermudas	36,530 lbs. sugar
New Yorke	30,550 lbs. sugar
New England	373,114 lbs. sugar
Virginia	131,970 lbs. sugar
Carolina	9,325 lbs. sugar
Jamaica	3,800 lbs. sugar

Total 585,289 lbs. sugar

⁸ It should be remembered, also, that some of the sugar that was consumed in the mainland colonies was itself brought from England.

of the present state of New England, written in 1676, declares that "tobacco, sugar, indigo, cotton-wool, ginger, logwood, fustic, cocoa and rum are imported and again transported."⁹ "On Sunday," I find elsewhere, in an entry for the year 1666, "a vessel of one hundred and twenty tons from New England laden with sugar, tobacco, indigo and some beaver, by a violent storm was cast away in Plymouth port and little or nothing of her lading saved;"¹⁰ and again, "On Friday night the 'Exchange' of Boston, New England, was driven in this harbour (Swansea) bound for London, laden with tobacco, sugar, oil and some beaver-skins."¹¹

The chief form that the sugar trade—in the widest acceptance of that term—between the sugar islands and the continent colonies assumed—was that of the traffic in rum. Inasmuch as rum is merely a by-product of sugar, the importation of the liquor into America did not seriously affect the supply of sugar upon the English market. It will, nevertheless, be well to pause a moment at this point to consider the character and nature of this commerce in rum, since it is indicative of the extent of the communication that then existed between the islands and the mainland, and also suggests the encouragement that the steady demand for rum must have given to the raising of sugar in the island colonies. In the northern colonies rum was the commodity in return for which the settlers received from the Indians most of the peltry which for many years was one of the chief articles of colonial export. It is interesting to note that whereas in Virginia tobacco was long one of the most important articles of barter with the Indians, in New England and New York rum, another narcotic-stimulant, took its place as the product in exchange for which the white man obtained indirectly for the European market the riches of the American forests.

⁹ Calendar of State Papers, Colonial, 1574-1674, Addenda; 1676-1676, p. 466. Answer of Edward Randolph to several heads of inquiry concerning the present State of New England.

¹⁰ Calendar of State Papers, Colonial, 1661-1668, p. 430.

¹¹ Calendar of State Papers, Colonial, 1661-1668, p. 429. Another entry for this same year (1666) states that Mr. Bendal's (Kendal's) from New York with sugar, tobacco and furs was . . . cast away on St. Francis Island." (*Ibid.*, p. 429.)

Colonial entries abound in mention of the rum that the colonies had from the West India Islands. The great part, moreover, which they played in taking off the rum there produced is clearly shown in the enormous discrepancy between the amounts of rum sent from the West Indies to England and the northern colonies respectively.¹²

Beside the great demand for the West Indian rum to supply the North American Indians in exchange for furs, another large mar-

¹² The figures referred to are taken from the Rawlinson Manuscript (B.250, Folio 64) in the Bodleian Library. No signature is attached, and there is no mention of authority, but I shall quote them here as in large measure, at least, indicative of actual conditions at that time. They are for the years 1697-1700, and are as follows: Of Muscovado sugar exported from Barbados there were sent:

	To England	To Plantations
Hogsheads	63,666	402
Tierces	4,450	189
Barrels	14,693	4,733
Pounds	8,800
Small Casks	163	380

and of white sugar:

	To England	To Plantations
Hogsheads	2,148
Tierces	372	1
Barrels	1,267	103

For rum, the figures are quite turned about, showing:

	To England	To Plantations
Hogsheads	4	6,875
Tierces	1	6,403
Barrels		6,837
Small Casks		3,452

A partial explanation for these figures rests, doubtless, in the fact that French brandy was then filling a place which the West Indian rum might well have occupied among the utilities of the English people. This is very strongly suggested in an excerpt from the Journal of the Assembly of Barbados for April 15, 1679 (Calendar of State Papers, Colonial, 1677-1680, p. 352) in which it is resolved "To apply for His Majesty's favour in setting a moderate custom on rum, the native produce of this island, that they may be enabled to transport it into England on reasonable terms, and in the room of French brandy supply it to His Majesty's Fleet and other occasions."

ket was opened up for this product among the natives of Africa. The European traders yearly carried great quantities of rum to the African coast, where they gave it in exchange for slaves. These slaves they carried back to the West Indies and sold to the planters there, who straightway put them to work in cultivating the sugar cane. The sugar was in due season converted in part into rum, which in its turn was carried again to Africa, and thus served to bring still more members of the black race into bondage. Thus was the seemingly paradoxical economic circle completed over and over again during the years of sugar and slavery in the West India Islands.

In addition, also, to the sugar imported into England from her American colonies there were some Portuguese sugars on the English market at that time. From Portugal the actual importation was not very great; but English merchants in Portugal managed great supplies of sugar there, and re-exported them thence without carrying them into England. The effect on the English market, therefore, was the same as if the commodity had in reality been put on sale in England, as the account of it was recorded to the credit of the English merchant.¹³ By the year 1691 the importations of sugar from Lisbon had apparently been obliged to yield before the increasing supplies from the English plantations, so that

¹³ Colonial Entry Book, Vol. 13, pp. 59, 60. Letter of the Gentlemen-Planters in London to Council and Assembly there (in Barbados) concerning their exertions against proposed English duty on sugar. Dated London, May Day, 1671. In a paper appended to this letter and entitled "The State of the English Sugar Trade with that of Portugal," it is stated that "there was not imported into England from Portugal above 2,000 chests of sugar annually, which do not cost there above 40,000 pounds; . . . for one-quarter of the sugars received in Portugall in exchange of English manufactures are not brought into England. But are in English shippes carried to the several Markets of the straits and other places and returns for them are made to England either in the manufactures of those places or moneys. . . . (it) would be much more to the advantage of the navigation and no damage to the Portugal trade to have all carried the same way than to have returns made into England in sugars to the benefit of the Portugal plantations and the ruin of the English. The sugars that are brought into Portugal for the market of England are the very best that come from Brazil, and are usually sold

at the end of the century sugar from Portugal did not have any significant effect upon the English market. In a paper referred in 1691 (-2) to the Commissioners of Customs by the Lords Commissioners of the Treasury it is stated that "The antient Trade of refining sugar has within these forty yeares past very much increased in this Kingdom by reason of the plentiful supply of Browne sugars from our owne Plantacons and has . . . beaten out the Lisbon trade from whence we were formerly supplied with white sugars."¹⁴

While Portuguese sugars did not permanently affect the English market, the influence of the other European nations engaged in the sugar trade was more decided and more lasting. The activity of the French and the Dutch in usurping the foreign market for English sugar had its counter effect upon the domestic supply. Moreover, the setting in of the law of diminishing returns in some of the West India Islands had, during the latter part of the seventeenth century, an additional effect upon the supply of sugar in England.

As the inevitable consequence of the increase in French sugar cultivation and trade, much of the sugar that England had formerly supplied to her foreign consumers was thrown back upon her domestic market, and the supply of sugar in England was relatively increased. "In the year 1666," we read, "the French made sugar on half of St. Xopher's and a very inconsiderable quantity on Martinico and Guadaloupe. In the said yeare the ffrrench took from the English their halfe of St. Xopher's, Antigua and Montserrat, and in them above fifteen thousand negroes and materials for one hundred and fifty sugar works, amounting in Vallue to four hundred thousand pounds which the(y) carried to their own sugar Plantations and are thereby not only very much Increased in the making of sugar, but in strength alsoe by the coming to them of great numbers from ffrance and ffrom the

here from £3 to £3 10s. per cent., whereas the English being by the Act of Navigation confined all to England and the most part of their whites being coarse in comparison of those of Brazil are sold for about 45s. per cent.."

¹⁴ Treasury Board Papers, Vol. XVII, No. 14.

English Collonyes.¹⁵ the ffrench Kinge bending his designe to be great at sea and knowing the trade to the Plantations to be the best nursery for seamen did furnish his West India Company with a very great stock of money, other acts of grace and ffavors in order to be engrosseing of that commodity and Beating the English out of that Trade and for the Better Compleating that Designe hath since the taking of the English islands imposed a custome in ffrauncs but of ffower Livres p. cent upon the sugars of his owne Plantations of what quallity soever, and ffifteene Livres upon whites and thirty-two Livres and ten sous upon Refined made by the English and all other fforaingers. By reason of which great Imposition the English and other fforaigne sugars are not transported into ffraunce as formerly and greater quantites of sugars are Imported into England which soe Llessens the vallue of english sugars that there is very little profit to the Planters in making them."¹⁶ ¹⁷.

The Dutch activity in the sugar trade had much the same effect on England as had the French. Contrary to the Navigation Acts the Dutch traders continued to load their vessels with sugar from the English plantations. Of this sugar they carried some directly to foreign ports, or indeed sometimes to the American colonies

¹⁵ These three island possessions were returned to England by France in the next year (1667), according to the Treaty of Breda.

¹⁶ Colonial Entry Book, Vol. 13, p. 56; Barbados—Letter of Gentlemen-Planters in London to Council and Assembly there concerning their exertions against the proposed English duty on sugar. London, May Day, 1671. In the "State of the case of the sugar planters in America" appended thereto.

¹⁷ Mr. Rogers notes that "the duties imposed on sugar in 1685 were remitted in 1693 because it was found that they interfered with the foreign trade of the English refiners and traders." (Rogers, l. c., Vol. V, p. 462.) It is interesting to note also in this connection that the price of sugar rises slightly in England during the decade 1693-1702 over the decade immediately preceding. Mr. Rogers attributes this rise to the "risks of war," but I would suggest that it was directly connected with the regulation of 1693. The evil, of course, was not entirely remedied by this enactment, but the repeal of the tax was undoubtedly calculated to bring about slightly higher prices in England, removing, as it did, one disability of the English sugar trader.

themselves. The rest they transported first to Holland, where it was refined by Dutch capital, after which Dutch vessels distributed it to various European countries. In either case the effect upon the English market was the same, namely, the increase of sugar in England by reason of the falling off in her market outside her borders.¹⁸

One other influence affecting the supply of sugar in England must be considered here. It is undoubtedly true that the sugar lands in Barbados had begun before the end of the seventeenth century to show diminishing returns. One of the most crying evils of those islands, until comparatively recent times, was the inadequate manuring and fertilizing of their soil. This was especially the case when the English sugar planters, already burdened with debt, were struggling against all the extra hardships imposed upon them by the English colonial policy. As early as 1661 the Barbados planters began to protest that the productiveness of their island was waning. "The land," they assert, "is much poorer and makes much less sugar than heretofore and much worse."¹⁹ In 1668 we read: "Barbados contains one hundred

¹⁸ It is true that in large measure at least the Dutch activity must have annulled in itself any real influence which it might have had upon the English domestic market. For the sugar carried direct to foreign ports, or to foreign ports *via* Holland, obviously never reached England, and, therefore, never actually swelled the amount upon the English market. The cutting off of the foreign demand for sugar, therefore, met this market depleted by the amount carried direct to other countries, and the resulting effect on price must have been the same—or in large measure the same—as if neither of the phenomena had existed. Inasmuch, however, as the Dutch carried sugar that was not English, they did have a very real effect upon the price of sugar in England. The complaints against the Dutch came, naturally, from the English traders and refiners whose profits were thus cut off by the Dutch industry in those fields. The persistency with which the planters employed Dutch vessels, and with which, especially later, the Colonies of North America used foreign sugars, show clearly that it was greatly to their advantage to do so. For the actual consumer in England it made, most probably, very little real difference.

¹⁹ Calendar of State Papers, Colonial, 1661-1668, p. 45. The President and Council of Barbados here declare that "they fear that the condition of the island has been represented to the King far richer than it is, and

thousand acres and renders not by two-thirds its former production by acres. The land is almost worn out, and the thickets where cotton and corn are planted are so burnt up that the inhabitants are ready to desert their plantations." Nevis is also declared in this same article to be "much decayed by long settling."^{20 21}

In 1671 the Assembly of Barbados addressed a letter to the "Gentlemen Planters in London," which gives in summary a graphic account of the state of Barbados at that date. In the letter they enclosed a petition to the King, which "sheweth":

"That they have been informed of some motions in the last session of Parliament for Increasing the Custome on Sugars the chief produce of this yo^r Ma^{ty}'s Island, and haveing by very grievous experience found that length of time hath soe much impoverisht their Lands that notwithstanding their vaste and endless Labours in Improvements they yet remaine near Barren and unfruitfull, the timber and wood made use of and destroyed²² and the difficulties in making that commodity so much Increased as its Vallue hath of late yeares Lessen'd. . . ."²³

Coupled with this natural decline in the productiveness of the soil in the small and overworked island of Barbados there was the enforced abandonment of estates by impoverished planters borne down by debt and unable to pay the heavy exactions of the

that offers have been made to raise taxes greater than the people can well bear which would grieve his good subjects in Barbados."

²⁰ Calendar of State Papers, Colonial, 1661-1668, p. 586.

²¹ About this same time, also, "several planters belonging to His Majesty's sugar plantations" petition the Council for Plantations to the following effect: "That the growth of said plantations has diminished $\frac{1}{4}$ and the charge of making sugar has much increased, by reason whereof the English planter finds little or no recompense for hazard and labour."—Calendar of State Papers, Colonial, 1669-1674, p. 129.

²² This statement is the more remarkable, and indicative of the extent to which the land of Barbados must have been put to sugar planting, when it is remembered that at the first coming of the English, virgin forest covered the entire island. Such also was the character of the growth that it was almost impossible for the first settlers to clear enough of the ground to plant the necessary food supply, and when the trees were felled the colonists were often obliged to plant in among their branches as they lay upon the ground, because by reason of their enormous size they were unable to remove them. (See Ligon, l. c., p. 24).

²³ Colonial Entry Book, Vol. 13, pp. 88, 89.

English Government. Butel-Dumont states that in the eight years during which the act of James II was in force more than forty mills in Barbados were abandoned, and planters everywhere were reduced to great extremities.²⁴ These two forces, therefore—the decreasing productivity of the cultivated lands by reason of the working of the law of diminishing returns and the decreasing extent of these cultivated lands by reason of the enforced abandonment of estates—these two forces together imposed a check upon the rate of increase in the amounts of sugar sent from the sugar islands to England. The Navigation Acts fell more heavily on Barbados than on her neighbors, because of her dense population and her already hard-worked soil. All her resources were being drawn on before the final blow came, so that in the time of depression she had no reserve force upon which to call.

Jamaica, on the other hand, was, as already noted,²⁵ producing increasing quantities of sugar in these years. In 1673 Lieutenant Governor Lynch writes to the Council for Plantations that “if Jamaica have easy government, be defended from enemies and supplied with negroes and servants and have no privateering, in six years it may produce as much sugar as Barbados, which island lessens every year both in quantity and quality, while those of Jamaica improve in both, so that their sugars are sold at 30 per cent. more than theirs.”²⁶ From this it is evident that the effect which conditions in Barbadoes were having on the English sugar market were being in great measure counteracted by the increasing sugar culture in Jamaica.

In comparing all these various circumstances of the English sugar market one readily understands the falling prices of sugar and the complaints of the planters and refiners concerning the glut of their sugars in England. It becomes clear how it was that, as these phenomena indicate, the amount of sugar in England remained at a progressive ratio ahead of the demand. The English supply was growing constantly larger by the natural increase from

²⁴ “*Histoire et Commerce des Antilles Angloises*,” attribué à M. Butel-Dumont, 1758, p. 215.

²⁵ See ante, pp. 98, 99.

²⁶ Calendar of State Papers, Colonial, 1669-1674, p. 477.

the colonies, in particular Jamaica, as well as by reason of the great quantities thrown back upon England by the failure of her market abroad. It is true that in some islands, as in Barbados, the law of diminishing returns was setting in; but this was operative for a relatively small part of the entire sugar-producing area. As the supply of sugar in England increased, and the prices fell, sugar, formerly a costly luxury, became more and more accessible to the great majority in England, among whom the desire for it was already strong. At the end of that era it was, properly speaking, an article of regular consumption among the English people.

CONCLUSION.

With this point reached, the goal indicated at the beginning of this paper as its ultimate aim has been attained. Through the events reviewed in these pages sugar has traversed the pathways of geography from India to America, in migration and conquest and exchange. In the course of this westward advance, also, the commodity sugar has run its economic course as well. From the pharmacopœia of the physician it has passed by successive stages to the table of the average Englishman who has come to regard the addition which it makes to his daily food as one of the conditions of his happiness. Sugar has, in short, passed forever from the lists of superfluities in which it stood at the beginning of the paper, and has assumed the humbler rôle of a necessity of life, as that term is commonly conceived.

In tracing the history of sugar the subject of the research has been very carefully adhered to, all subsidiary questions, such as taxation and the regulation of the sugar trade, having been almost entirely omitted. These must remain for future investigations in this field, when the subdivisions of the sugar question will be dealt with at length. In such a study the attention will center in the various problems of production and exchange, as it has here gathered especially about the phenomenon of consumption, and the subjects of taxation and slavery will be duly emphasized and examined. Slavery was in the West Indies as inextricably bound

up with the sugar culture there as were the Navigation Acts with the trade in sugar, and neither of these questions can be properly understood apart from that one to which they are allied. For present purposes, however, reference to these subjects has been restricted to those aspects in which they have exerted an influence directly upon the actual conditions of the demand for sugar or of the sugar supply, and so indirectly upon the main investigation of the paper, namely, the history of sugar as a commodity.



BIBLIOGRAPHY.

I. AUTHORITIES READ AND CONSULTED.

A. THEORETICAL.

- Seligman. "The Economic Interpretation of History," 1902.
Böhm-Bawerk. "Positive Theory of Capital," 1891.
Pantaleoni. "Pure Economics," 1898.
Clark. "The Philosophy of Wealth," 1892.
Senior. "Political Economy," 1872.
Keasbey. "Prestige Value." Reprinted from the Quarterly Journal of Economics, May, 1903, Vol. XVII.
Irons. "A Study of the Psychology of Ethics," 1903.
Royce. "Outlines of Psychology," 1903.

B. HISTORICAL.

- Lavisse et Rambaud. "Histoire Générale," 1894.
Prescott. "Ferdinand and Isabella." Edited by John Foster Kirk, Philadelphia.
Moses. "The Economic Condition of Spain in the Sixteenth Century." Published in the Annual Report of the American Historical Association, 1893.
Payne. "History of the New World called America," 1892.
Herrera. "Description des Indes Occidentales qu'on appelle aujourd'hui le Nouveau Monde." Translated into French, 1622.
"General History of the Vast Continent and Islands of America commonly called the West Indies from the First Discovery Thereof." Translated into English by Captain John Stevens, in 6 volumes, 2d edition, 1740.
Churchill. "A Collection of Voyages and Travels now first published in England," London, 1746. Six volumes. Vol. III contains a "Description of the Caribby Islands," by Herrera.
Las Casas. "Œuvres de don Barthelémi de las Casas." With preface and notes by M. Llorente, Vols. I and II, 1822.
Geo. Ed. Ellis. "Las Casas and the Relations of the Spaniards to the Indians," Winsor, "Narrative and Critical History," Vol. II, 299.
Winsor. "Narrative and Critical History of America," 1888.
Peter Martyr. "The Historie of the West Indies containing the Actes and Adventures of the Spaniards which have Conquered and Peopled

- those Countries." Published in Latin by Mr. Hakluyt, and translated into English by Mr. Lok, Gent.
- Alexander von Humboldt. "De Distributione Geographica Plantarum secundum Coeli Temperiam et Altitudinem Montium," 1817.
- "Essai Politique de l'île de Cuba," 1826.
- Dr. V. de Roches. "Cuba Under Spanish Rule."
- "The First Three English Books on America." Compilation by Richard Eden, of P. Martyr, of Anghiera; Sebastian Münster, and Sebastian Cabot.
- Hakluyt. "The Voyages of the English Nation to America Before the Year 1600." From Hakluyt's "Collection of Voyages," Edmund Goldsind, editor, 1889.
- "Hakluyt's Voyages," James MacLehose & Sons, Glasgow, 1904.
- Purchas. "His Pilgrimes," 1625. Book V, "Voyages and Travels to and in the New World called America."
- "His Pilgrimage or Relations of the World," 1614. In four parts. Part I, Book VIII, "Relations of Discoveries, Regions and Religions of the New World," pp. 717-735.
- Bryan Edwards. "History of the British Colonies in the West Indies," 1806.
- Southey. "The Chronological History of the West Indies," 1827.
- Douglass, Dr. William. "Summary, Historical and Political of the First Planting of our American Settlements," circ. 1750.
- Oldmixon. "British Empire in America," 1741.
- Martin. "History of the West Indies," 1836.
- Thomas, Sir Dalby. "Rise and Growth of the West India Collonies and of the Great Advantages they are to England in Respect to Trade," London, 1690. Printed in the Harleian Miscellany, Vol. II, London, 1808-1813.
- Butel-Dumont (attribué à). "Histoire et Commerce des Antilles Angloises," 1758.
- Schomburgk. "History of Barbados," 1848.
- Ligon. "A True and Exact History of Barbados," by Richard Ligon, Gent., 1673.
- Clarke, Samuel. "A Mirrour or Looking Glasse." Vol. II, Account of Barbados, 1670.
- Davis, N. Darnell. "Cavaliers and Roundheads of Barbadoes," 1887.
- Long. "The History of Jamaica," 1774.
- Davy, John. "The West Indies Before and Since Slave Emancipation, Comprising the Windward and Leeward Isles," 1854.
- Anderson. "Treatise on Commerce," 1787.
- Macpherson. "Annals of Commerce," 1805.
- Craik. "The History of British Commerce," 1844.

- Cunningham. "The Growth of English Industry and Commerce," in one volume, 1885.
- "The Growth of English Industry and Commerce," in two volumes. Vol. I, Early and Middle Ages, 1890. Vol. II, Modern Times, 1892.
- Herbert. "The Livery Companies of London," 1837.
- Gross. "The Gild Merchant," Vol. I, 1890.
- Egerton. "Origin and Growth of English Commerce," 1899.
- "A Short History of British Colonial Policy," 1897.
- Warner. "Landmarks in English Industrial History," 1899.
- Woodward. "Expansion of the British Empire," 1902.
- Price. "English Commerce and Industry," 1900.
- Hewins. "English Trade and Finance," 1892.
- Gibbins, H. de B. "Industry in England," 1896.
- Andrews. "History of England," 1903.
- Rogers, Thorold. "Six Centuries of Work and Wages," New York.
- "History of Agriculture and Prices in England," 1866-1887.
- "Economic Interpretation of History," 1888.
- Shaw. "The History of Currency," 1896.
- Bruce. "Economic History of Virginia in the Seventeenth Century," 1896.
- Weeden. "Economic and Social History of New England," 1890.
- Calendar of State Papers, Colonial.
- Ashley, John. "The Sugar Trade with the Incumbrances Thereon Laid Open," 1734.
- Gee, Joshua. "The Trade and Navigation of Great Britain Considered," 6th edition, 1760.
- Young, William. "West India Commonplace Book," 1807.
- Child, Sir Josiah. "A Discourse of Trade, Coyn and Paper Credit, &c.," 1625.
- Marshall. Statistics of Great Britain.
- Grey, Earl. "The Colonial Policy of Lord John Russell's Administration," 1853.
- Cromwell's Acts. "A Book of Values of Mdse. imported, according to which Excize is to be paid by the first buyer," 1657.
- Reed, William. "History of Sugar and of Sugar-bearing Plants," 1866.
- Falconer, W. "Sketch of the History of Sugar in Early Times and Through the Middle Ages." In *Memoirs of the Literary and Philosophical Society of Manchester*, Vol. IV, Part II, pp. 291-301, 1796.
- Roth, H. Ling. "A Guide to the Literature of Sugar."
- Phillips, Henry. "History of Cultivated Vegetables," 1822.
- Moseley, Dr. Benj. Essay on Sugar, in "Medical Essays," 1799.
- Ritter, Karl. "Über die Geographische Verbreitung des Zuckerrohrs (*Saccharum Officinarium*) in der alten Welt vor dessen Verpflanzung in die Neue Welt." Published in 1841, in the "Philologische und historische Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin, aus dem Jahre 1839."

In addition to the historical references here named I have, through the kindness of Miss Grace Albert, had access to some excerpts from the Treasury Board Papers, the Colonial Entry Book, the Manuscript Rawlinson in the Bodleian Library, and the Colonial Papers. For these I desire to express my sincere thanks.

C. GEOGRAPHICAL.

Alexander von Humboldt. "The Island of Cuba," 1825. Translated by Thrasher, 1856.

"Personal Narratives of Travels to the Equinoctial Regions of America in 1799-1804." Translated by Thomasina Ross. 1852-1853.

Bonsal, Stephen. "The Real Condition of Cuba To-day," 1897.

Turnbull. "Travels in West-Cuba, with Notes of Porto Rico and the Slave Trade," 1840.

Hazard. "Cuba, with Pen and Pencil." 1871.

Flinter. "An Account of the Present State of Porto Rico," 1834.

Beckford. "A Descriptive Account of the Island of Jamaica, with Remarks Upon the Cultivation of Sugar," 1790.

Sloan. "A Voyage to the Islands Madera, Barbados, Nevis, St. Christopher, and Jamaica, with the Natural History of Jamaica," 1707.

Bellin. "Description Géographique des Isles Antilles possédées par les Anglais," 1758.

Labat. "Nouveau Voyage aux Iles de l'Amérique," 1747.

Hughes, Griffith. "The Natural History of Barbados," 1750.

Morris, Daniel: "Bulletin of Miscellaneous Information—Economic Resources of West Indies," 1887.

D. TECHNICAL.

de Candolle. "Origine des Plantes Cultivées," 1886.

Simmonds. "Tropical Agriculture," 1877.

Abel, Mary Hinman. "Sugar as Food." Farmers' Bulletin No. 93, U. S. Dept. Agriculture, 1899.

Benton, Frank. "Bee Keeping." Farmers' Bulletin No. 59, U. S. Dept. Agriculture, 1897.

United States Dept. Agriculture. Special Report No. 1. "Cane-Sugar Industry," 1877.

Figuier. "Les Merveilles de l'Industrie."

Derosne. "De la Fabrication du Sucre aux Colonies et des Nouveaux Appareils propres à améliorer cette Fabrication," 1843.

Wray. "The Practical Sugar Planter," 1848.

Roughley. "Jamaica Planter's Guide," 1823.

Barlow. "A Treatise on the Manufactures and Machinery of Great Britain," 1836.

- Belgrove. "A Treatise upon Husbandry or Planting," 1755.
- Whitehouse. "Agricola's Letters and Essays on Sugar Farming in Jamaica," 1845.
- Martin, Samuel. "An Essay upon Plantership," humbly inscribed to his Excellency Geo. Thomas, Esq., 5th edition, 1773.
- Griffin. "The Sugar Industry and Legislation in Europe." Published in Quarterly Journal of Economics, 1902-1903, Vol. XVII.
- Rutter. "The Sugar Question in the United States." Published in Quarterly Journal of Economics, 1902-1903, Vol. XVII.

II. ADDITIONAL AUTHORITIES QUOTED.

- Macaulay. "History of England," Harper & Bros., New York, 1879.
- Lamprecht, Karl. "Zur jüngsten deutschen Vergangenheit," 1903, II Band, Erste Hälfte.
- Marshall. "Principles of Economics," 1890.
- Patten. "Development of English Thought."
- Bacon, Lord. Works, Philadelphia, 1842.
- Smith, Adam. "The Wealth of Nations." Edited by Thorold Rogers, 1869.



LIFE.

I was born in Philadelphia, Pennsylvania, November 25, 1878. I received my early training in the public schools of Philadelphia, entering Bryn Mawr College from the Philadelphia High School for Girls in the fall of 1897. I held the First Bryn Mawr Matriculation Scholarship for the Middle and Southern States in the year 1897-1898, and the Philadelphia Girls' High and Normal Schools Alumnæ Scholarship from 1897 until 1901. My major studies in Bryn Mawr were Economics and Politics and History. In my senior year I was awarded the Bryn Mawr European Fellowship. I received the degree of Bachelor of Arts from Bryn Mawr in 1901. The following year I pursued graduate work at Bryn Mawr in Economics and History, under Prof. L. M. Keasbey, Prof. C. M. Andrews and Dr. A. S. Johnson; and in June, 1902, I received the degree of Master of Arts of Bryn Mawr College. The year 1902-1903 I spent at the University of Leipzig under Professor Ratzel, Professor Bücher and Professor Lamprecht. My work there was in Economic Geography, Political Economy and History. During the years 1903-1904 and 1904-1905 I pursued graduate work at Bryn Mawr College for the degree of Doctor of Philosophy. In the spring of 1904 I was awarded the Resident Fellowship in Economics and Politics for the year 1904-1905. In May, 1905, I passed the requisite examinations in my major subject, Economics, and in my two minor subjects, History and Sociology, for the degree of Doctor of Philosophy of Bryn Mawr College. My later graduate work at Bryn Mawr was pursued under Professor Keasbey and Professor Andrews. It is a pleasure to express my deep gratitude to all those who have directed my graduate studies, and who have so constantly aided me with advice and encouragement. In this respect I desire especially to express my appreciation of the invaluable assistance which Dr. Keasbey has rendered me in the preparation of this thesis.

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